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US EPA RECORDS CENTER REGION 5

Wetlands Delineation at American Chemical Services Hazardous Waste Site, Griffith, Indiana. IAG-DW14934313-0

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# Summary

At the request of the U.S. Environmental Protection Agency, Region V, the U.S. Fish and Wildlife Service conducted a wetlands delineation for site wetlands potentially impacted by contaminants originating at the American Chemical Services (ACS) hazardous waste site.

Office review and field surveying indicated numerous wetlands exist at the ACS site, many of which are not identified on the National Wetland Inventory. The diversity of wetland types present provide habitat for a variety of wildlife species.

### INTRODUCTION

The American Chemical Services (ACS) Superfund site is located in Griffith, Indiana on the outskirts of the city's southeast side. The site was placed on the National Priorities List in 1983 as a result of investigations into chemical disposal practices on the site. ACS operates as a chemical/solvent recovery facility, which also has a limited chemical manufacturing operation. During the course of its operations, ACS dumped and otherwise disposed of unrecoverable solvents on the property, in addition to transporting waste to the adjacent Griffith City Landfill. Kapica Drum, Inc. also allegedly disposed of drum-cleaning residues on ACS property. These 3 sites total 52 acres and jointly comprise the official ACS site.

The National Wetland Inventory (Figure 1) indicates numerous and extensive wetlands within a 1-mile radius of the ACS site to the southwest, south, southeast, east, and northeast. There is an extensive wetland complex adjacent to the northwest boundary of the site. These wetlands are dissected and bordered by the Grand Trunk Western Railroad lines, the Chesapeake and Ohio Railroad lines, and the abandoned Erielackawanna Railroad lines. The wetlands to the north of the Grand Trunk Western lines were not within the project boundary limits, however, they are likely hydraulically connected. The NWI map classifies this wetland complex as palustrine, emergent, semi-permanent/palustrine emergent, seasonally flooded. The entire complex is approximately 78 acres, however, only 50.5 acres were included in the present delineation.

### **OBJECTIVES**

The objectives of this project were:

- 1. To ground-truth and verify wetlands delineated on the National Wetland Inventory maps.
- 2. To identify other wetland areas not included in the National Wetland Inventory.
- 3. To identify dominant vegetation in the various wetland areas.
- 4. To assess relative value of the various wetland habitats for fish and wildlife resources.

# <u>METHODS</u>

The methods utilized in this delineation are outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989). Because of the relative homogeneity of the site, the soils assessment procedure was selected. Prior to the field work, an office review was conducted to preliminarily outline the area in question. Due to the unavailability of the most recent aerial photographs the preliminary boundaries were outlined from a 1984 photograph, obtained from the EPA project manager. Based upon the field inspection, the 1984 photograph was accurate with the exception of approximately 5 additional acres lost to the Griffith Landfill operation.

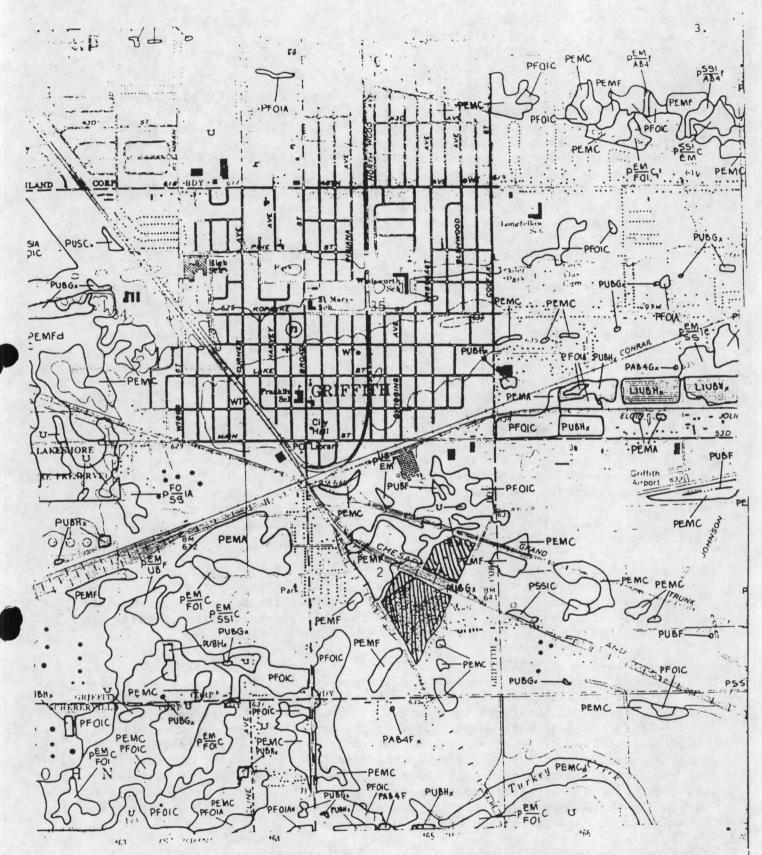


FIGURE 1. National Wetland Inventory map in the vicinity of the American Chemical Service site, Griffith, Indiana. USGS Highland Quadrangle. Cross-hatched area is ACS.

During the office review and map preparation a copy of the U.S. Soil Conservation Service Soil Survey for Lake County, Indiana (1972) was consulted to determine the presence or absence, and locations of hydric soils. The Lake County Indiana Survey sheet number 21 (Figure 2) indicates the majority of the area in question consists of Maumee loamy fine sand, interspersed with areas of Plainfield fine sand, Watseka loamy fine sand, and a small section of Tawas muck. The Maumee loamy fine sand and Tawas muck are classified by the U.S. Department of Agriculture and the Soil Conservation Service (1986) as hydric soils. The soil survey was used to compare soil types to the general configuration of the visual boundary of the wetlands on the aerial photograph. To avoid damaging the aerial photograph, a clear plastic overlay was attached and the information transcribed. Points along the visual perimeter of the wetland that coincided with the hydric soils boundaries were randomly selected and their compass bearings recorded to assist in field location. Location of the points were arbitrarily located from 88 to 282 feet apart based upon a scale of 1 inch (in) - 25 millimeters (mm) - 220 feet (ft), 1 mm - 8.8 ft. The preliminary map generated in the office (Figure 3) was used in the field reconnaissance flagging effort. In the field, point A was located on ground by its position relative to the railroad track embankment and the tree row in the upper ? northwest corner of the study area. Based upon the preliminary map, point B was located with the use of a Suunto MC-1 mirror compass and was measured off with a tape measure 220 feet S 66 E of point A. All other points were located and measured off in the same manner. Orange flags were placed at each point, and pink flags were placed every 55 feet to assist in maintaining the proper bearing alignment. During the flagging reconnaisance visit, no sign of disturbed conditions existed in the wetland areas with the exception of the railroad embankments that were placed through the wetlands, and minor disturbances such as small clearings for groundwater wells etc., resulting from other remedial investigation activities occuring at the site. An apparent illegal fill had occured in the wetland located adjacent to the Griffith City Landfill.

During the reconnaisance flagging visit it was noted that the entire wetland area identified on the National Wetland Inventory either possessed standing water (up to 2.5 feet in some areas; 5 feet in the ditches), or water-logged saturated soils (water table at soil surface). Based upon these field observations it was determined that the hydrologic criteria for wetlands was met.

To aid in the identification of the different soil types in the field, the soil profiles for Maumee loamy fine sand and Plainfield fine sand were recorded (Table 1). Because the soil sample probes were taken to a depth of 18 inches, only the first 3 incremented intervals were noted. Soil samples were collected at each point with a 21 inch Hoffer Soil Sampler probe. Due to extreme inclement weather, and the strikingly obvious difference between the hydric and non-hydric soils, the soil samples were observed in the field and the lowest 3 inches were collected in whirl-pak bags for later comparisons to the Munsell Soil Color charts. Areas possessing standing water did not yield soil samples due to wash-out upon extraction of the probe. In these instances the whirl-pak bag containing the point location tags were transported back to the office empty.

Representative observation areas (Figure 4) were selected based upon several factors. In addition to selecting areas that met the hydric soil criterion, representative observation areas that had apparent characteristics, but were not identified on the National Wetland Inventory map were also chosen. The plant communities were characterized, and the percent areal cover of the dominant species

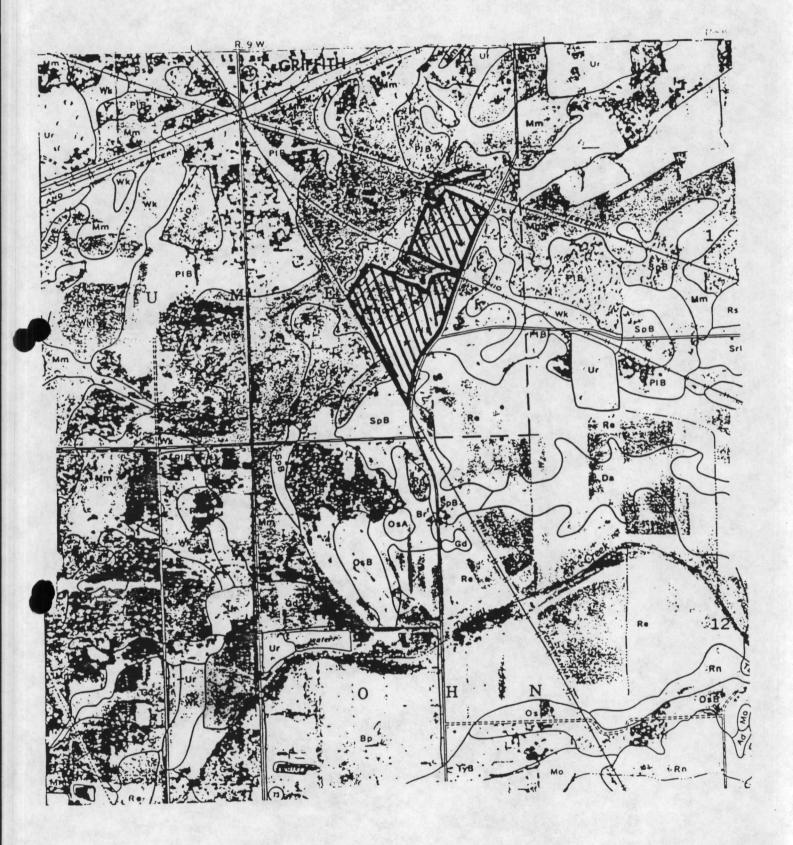


FIGURE 2. U.S. Soil Conservation Survey-Lake County. Plate number 21. Cross-hatched area is ACS. Shaded areas are hydric soils.

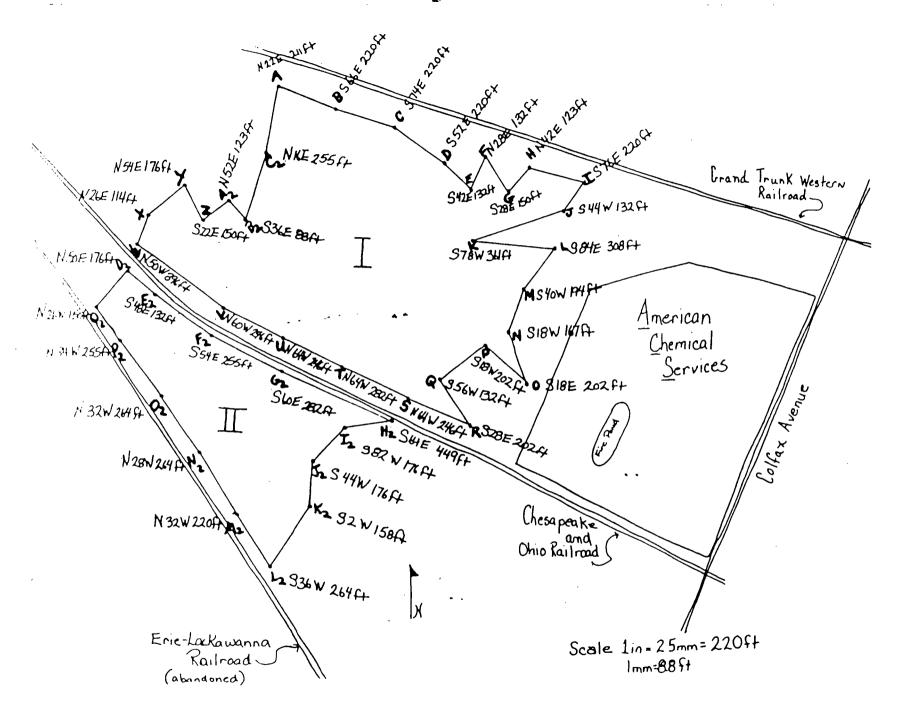


FIGURE 3. Preliminary wetland boundaries transcribed from 1984 aerial photograph. (Reduced 64%)

Table 1. Typical, Profiles for Maumee loamy fine sand (Hydric) and Plainfield fine sand (Non-hydric) in Lake County, Indiana.

Maume	e loamy f	ine sand		Plainfield fine sand									
Depth		Color	Munsell Notation	Depth	Color	Munsell Notation							
- 9	inches	Black	N 2/0	0-4 inches	Dark Grey	10 YR. 3/1							
9-16	inches	Black	N 2/0	4-6 inches	Greyish brown	10 YR. 4/2							
16-21	inches	Black	N 2/0	6-27 inches	Yellowish brown	10 YR. 5/4							

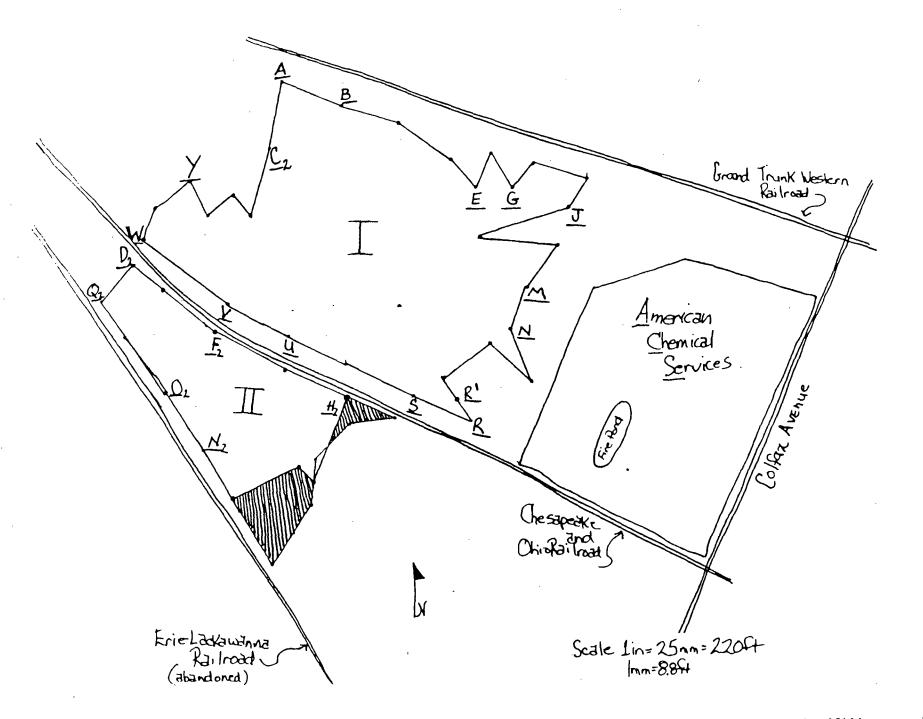


Figure 4. Representative observation areas for vegetation sampling. Cross-hatched area lost to landfill expansion  $^{\circ}$ 

in the communities were visually estimated. Samples of the dominant vegetation at each of the representative areas were collected in 8 gallon plastic bags and transported to the office for later identification. A list of references used is included in Appendix 1. Once the vegetation was identified the information was recorded on field data forms and the indicator status of the species was obtained from the National List of Plant Species that occur in Wetlands; Indiana (1988). A wetland determination was then made for each representative observation area based upon the 3 mandatory technical criteria; hydrophytic vegetation, hydric soils, and wetland hydrology, as outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands. The information obtained in the survey was used to prepare the final map of the site wetlands. It is important to note that no "additional" wetlands have been delineated in terms of acreage. This study has examined wetlands currently shown on the National Wetland Inventory map, and differentiated between the existing habitat types that are not delineated on the NWI within the original boundaries. The wetland boundaries indicated on Figures 5 and 6 were drawn based upon visual field observations of shifts in dominant vegetation. All soils within the peripheral boundaries are hydric.

#### RESULTS AND DISCUSSION

Of the 21 representative observation areas sampled, 12 met all 3 mandatory technical criteria for wetland determination (Table 2). Of the 9 areas that failed the mandatory technical criteria test, M, N, S, D<sub>2</sub>, and H<sub>2</sub> lacked all 3 criteria;  $C_2$  and  $C_2$  lacked hydrophytic vegetation criteria;  $C_3$  and hydrophytic vegetation criteria, and  $C_3$  lacked wetland hydrology and hydrophytic vegetation criterion.

## Wetland I

Wetland I is bounded by the Grand Trunk Western Railroad, the American Chemical Services site, and the Chesapeake and Ohio Railroad. Based upon the results of the survey this area is more complex than the National Wetland Inventory (NWI) indicates (Figure 5). NWI shows this area as consisting of a large palustrine, emergent, semi-permanent mixed with seasonally flooded wetland. The NWI does not show any of the forested or scrub-shrub wetlands bordering the palustrine emergent area. Of the 15 representative observation areas selected for Wetland I, the 5 that did not meet the technical criteria for wetland determination were all transitional zones between the wetland-upland interface. Non-hydric soils were present at 4 of the 5 areas. All of the areas possessed hydrophytic vegetation, but the percentage of FACU and UPL exceeded the percentage of FACW and OBL species at each of the 5 areas except  $R^1$ . It should be noted that some species were collected at the various areas that did not have indicator category designations; these species were not located in either the state or national list of plant species found in wetlands. It is sophistic to automatically list species not included on the National Plant List as UPL species, however, based upon reviewers suggestions this has been done with the exception of 2 species of liverworts: Riccia fluitans and Ricciocarpus natans. These two species are bryophytes which are found in the water; it would be completely erroneous to list these as UPL species.

#### Wetland II

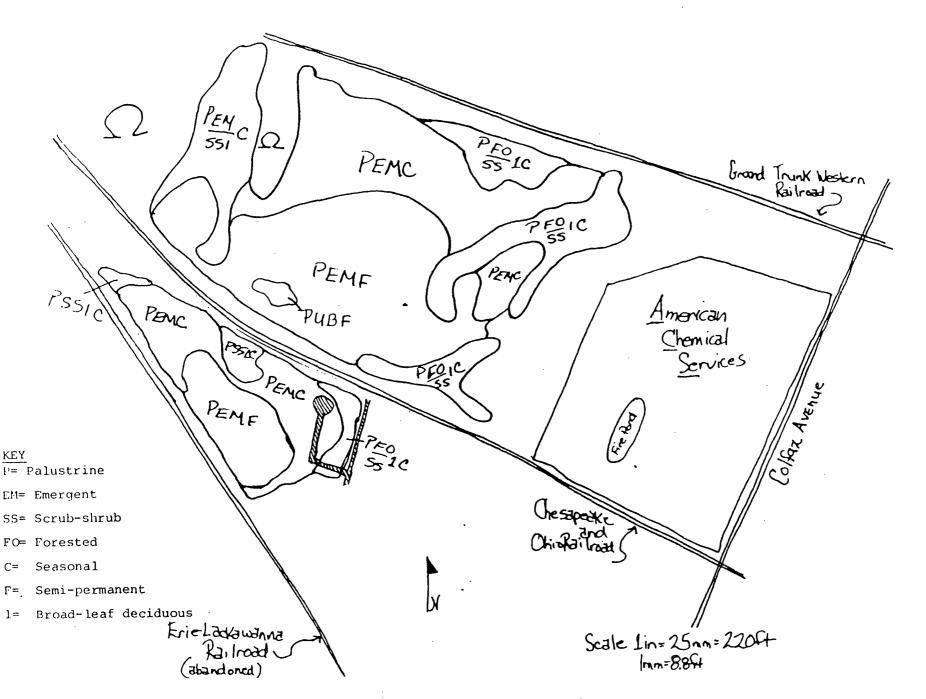
Wetland II is bounded by the Chesapeake and Ohio Railroad, the City of Griffith landfill, and the abandoned Erie-Lackawanna Railroad bed. Wetland II, according to the NWI is a palustrine, emergent, semi-permanent wetland. The various other habitat types surrounding it have been omitted from the official map.

This wetland area has been impacted due to past and present expansion of the City of Griffith Landfill. Approximately 5 acres of emergent/scrub-shrub/forested wetland on the north and southeast corners have been filled since the 1984 aerial photograph was taken. There is also a gravel road/turn-around that appeared to have been recently laid in the center of the palustrine, emergent, seasonally flooded wetland (Figure 5). This was probably an illegal fill; the U.S. Army Corps of Engineers has been notified.

There were 4 representative observation areas that did not meet the 3 technical criteria for wetland designation. However, 3 areas were placed along the railroad embankment, due to the location of a drainage ditch (approximately 5 feet deep) lying between the railroad tracks and the wetland area to the south of the ditch. Additional representative areas were not selected to replace areas not meeting the 3 mandatory criteria, any additional points along the railroad embankment would yield

Table 2. Results of the technical criteria test for 21 representative observation areas at the ACS site, Griffith, Indiana.

Area	Soil Series	Hydrophytic Vegetat	Hydric	Soil	Wetland H	lydrology	Wetland	Determination
		% OBL, FACW	Yes	No	Yes	No	Yes	No
Α	Maumee loamy fine sand	71.0	х		X	•	х	
В	Maumee loamy fine sand	100.0	Х		X		X	
Ε	Maumee loamy fine sand	66.7	Х		X		Х	
G	Maumee loamy fine sand	88.0	X		X		Х	
J	Maumee loamy fine sand	100.0	X		Х		Х	
M	Plainfield fine sand	25.0		X		X		X
N	Plainfield fine sand	20.0		Х		Х		X
$R^1$	Plainfield fine sand	50.0		Х		Х		X
R	Maumee loamy fine sand	66.0	Х		X		Х	
S	Plainfield fine sand	45.0		Х		X		X
U	Maumee loamy fine sand	100.0	X		X		X	
V	Maumee loamy fine sand	100.0	X		X		Х	
W	Maumee loamy fine sand	75.0	X		X		Х	
Y	Maumee loamy fine sand	60.0	X		X		Х	
$C_2$	Maumee loamy fine sand	16.0	Х		X	•		X
$D_2^2$	Plainfield fine sand	14.0		X		X		X
$\mathbf{F}_{2}^{2}$	Maumee loamy fine sand	40.0	X			Х		X
$H_2^{-}$	Plainfield fine sand	25.0		X		X		X
$N_2$	Maumee loamy fine sand	100.0	Х		X		X	
$o_2^-$	Maumee loamy fine sand	100.0	X		X		X	
$Q_2$	Maumee loamy fine sand	25.0	Х		X			X



Service road/turn-around fill.

the same results. Technically, the entire area would be classified wetlands if the railroad tracks and embankments did not exist. The 4th area lacked a predominance of hydrophytic vegetation.

## NATURAL RESOURCES

This field investigation indicated that the natural resources and natural resource values of the wetland habitats are greater than originally suspected because of the diversity of habitat types present: emergent, scrub-shrub, and forested.

The vegetation of "marshes" is characterized by emergent aquatic plants growing in permanent to semi-permanent shallow water. Also present are species of shallow open water communities, as well as those found in sedge meadows and seasonally flooded basins. Marshes are among the most productive of all wetlands for waterbirds and furbearers, and can also provide spawning and nursery habitat for many species of fish. Birds that use marshes for breeding and feeding include ducks, geese, rails, herons, egrets, terns, and many songbirds. Raptors such as the osprey, bald eagle, and northern harrier frequent marshes in search of prey. Important furbearers inhabiting marshes include beaver, muskrat, and mink. Excellent winter habitat can be provided for upland wildlife, including ring-necked pheasant and eastern cottontail (Eggers and Reed 1987).

The emergent wetlands in the centers of wetland areas I and II are predominated by cattails. A list of species collected can be found in Table 3. Cattail stands provide important food and cover for wildlife. For example, the rhizomes are eaten by geese and muskrats. Muskrats also use the foliage to construct their lodges, which in turn can provide resting and nesting sites for waterbirds. Yellow-headed blackbirds, red-winged blackbirds, and marsh wrens build their nests in cattail vegetation. Wetland area I contains an open water area with a muskrat den and much activity in this area was apparent.

The transitional zones between the emergent areas and shrubby or forest areas support hydrophytic vegetation on saturated but not inundated soils. Plants occurring in these areas include species found in other communities, such as the annuals of seasonally flooded basins, emergent aquatics of marshes, and invading shrubs or trees, which are present as scattered, small individuals.

The transitional emergent zones are particularly important for their water quality functions. Wildlife habitat is provided for many species including sandhill crane, ring-necked pheasant, common snipe, sedge wren, small mammals, and white-tailed deer. The composites found in these areas are an important fall and winter food source for songbirds.

Scrub-shrub wetlands are plant communities dominated by woody vegetation less than 20 feet in height and with dbh's of less than 6 inches growing on saturated to seasonally flooded soils. They can be dominated by willows and/or red-osier, and sometimes silky (swamp) dogwood. These areas usually retain some of the forbs, grasses, and sedges of the transitional emergent zones. The vegetation in scrub-shrub wetlands possesses a variety of wildlife value. Willows are browsed by white-tail deer and eastern cottontails; red-osier dogwoods provide berries for song birds and ruffed grouse and are browsed by deer and rabbits; and elderberry also provides berries for songbirds and ruffed grouse.

Forested wetlands are dominated by mature conifers or lowland hardwood trees. They

Table 3. List of Vegetation Species collected on April 10-11, 1990 at the ACS site, Griffith, Indiana.

Scientific Name	Common Name	Indicator Category*
	,	
<u>Agrimonia parviflora</u>	Agrimony	FAC+
A. pubescens	Agrimony	UPL
Ampelopsis arborea	Peppervine	FACW
Apocyneum androsaemifolium	Spreading dogbane	UPL
Aronia arbutifolia	Red chokeberry	FACW
<u>Betula allegheniensis</u>	Yellow birch	FAC
Caltha palustris	Marsh marigold	OBL
<u>ltis occidentalis</u>	Hackberry	FAC-
Cornus ammonum	Swamp dogwood	FACW+
<u>C. stolonifera</u>	Red-osier dogwood	FACW
Corylus americana	Hazelnut	FACU
Cytisus scoparius	Scotch broom	UPL
<u>Dipsacus</u> <u>sylvestris</u>	Teasel	FAC
Fragaria virginiana	Common Strawberry	FAC-
Galium aparine	Bedstraw	FACU
<u>Hamamelis virgiana</u>	Witch hazel	FACU
<u>Liquidambar styraciflua</u>	Sweet Gum	FACW
<u>Ludwigia</u> <u>glandulosa</u>	Ludwigia	OBL
<u>Lyriodendron</u> <u>tulipifera</u>	Tuliptree	FACU+
Nyssa sylvatica	Tupelo	FACW+
Onoclea sensibilis	Sensitive fern	FACW
Populus deltoides	Cottonwood	FAC+
P. grandidentata	Large-tooth Poplar	FACU
<u>tremoides</u>	Quaking Aspen	FAC
<u>runus pennsylvanica</u>	Pin cherry	FACU
<u>Pteris</u> <u>esculenta</u>	Braken fern	FACU
Quercus alba	White oak	FACU
Q. bicolor	Swamp white oak	FACW+
Q. coccinea	Scarlet oak	UPL
Q. palustris	Pin oak	FACW
Q. rubra	Northern red oak	FACU
Q. velutina	Black oak	UPL
Rhus copellina	Dwarf sumac	UPL
Riccia fluitans	Liverwort	NONE
Ricciocarpus natans	Liverwort	NONE
Rosa carolina	Wild rose	FACU-
R. multiflora	Multi-flora rose	FACU
<u>R. nitida</u>	Northeastern rose	UPL
Rubus allegheniensis	Highbush blackberry	FACU+
R. canadensis	Smooth blackberry	UPL
R, hispidus	Swamp dewberry	FACW
R. villosa	Low blackberry	UPL
Salix discolor	Pussy willow	FACW
S exigua	Sandbar willow	OBL
		<del></del>

Table 3. List of Vegetation Species (Con't).

Scientific Name	Common Name	Indicator Category
Sambucus canadensis	Elderberry	FACW-
Solidago altissima	Golden rod	FACU
Sonchus arvensis	Field sow-thistle	FAC-
<u>Spiraea alba</u>	Meadow sweet	FACW+
S. latifolia	Meadow sweet	FACW-
Stenanthium gramineum	Featherbells	FAC
Thelypteris thelypteroides	Marsh fern	FACW
Typha angustifolia	Narrow-leaf cattail	OBL
<u>. latifolia</u>	Broad-leaf cattail	OBL
<u>Ulmus rubra</u>	Slippery elm	FAC
Verbascum thaspus	Wooly mullein	UPL
Verbena urticifolia	White vervain	FAC+
Viburnum prunifolium	Black haw	FACU
<u>Vitis aestivalis</u>	Summer grape	FACU
V. vulpina	Frost grape	FACW-
Xanthorhiza simplissima	Yellowroot	UPL

<sup>\*</sup>Species with bold **UPL** indicator status are not listed in the state or national plant lists and have been assigned this status by default.

are important for stormwater and flood retention, and also provide habitat for white-tailed deer, furbearers, songbirds, ruffed grouse, barred owl, and amphibians. The various wetland habitats at the American Chemical Services site are being used by a variety of wildlife species, many of which were observed during the reconnaissance flagging visit, and the field survey visit (Table 4).

# ADDITIONAL WETLANDS

At a meeting held by the U.S. EPA project manager on February 28, 1990, FWS was requested to observe the area immediately east of American Chemical Services, adjacent to Colfax Road to determine if wetlands were present. This area was walked during the field reconnaissance flagging visit, which revealed various wetlands, some of which were not indicated on the NWI maps (Figure 6). There is a palustrine, emergent, semi-permanent wetland approximately 7 acres in size about 0.1 mile east of Colfax Road, that is identified on the NWI map. The field check revealed that this wetland extends west and southward within 20-30 feet of the roadway. These wetlands would be classified as a combination palustrine, emergent/scrub-shrub forested area with water regimes ranging between temporary, saturated, seasonal, seasonal saturated, and semi-permanent.

A wetland delineation was not conducted for this area, however, the soil survey maps indicate that portions do contain hydric soils.

#### ENDANGERED SPECIES

The Highland area of Lake County is represented by many federal and state species of special emphasis/concern, in addition to several federal threatened and endangered species. An annotated list follows:

Fed E Fed E Fed T Sp EM/CN

Indiana bat
Peregrine falcon
Pitchers thistle
Great blue heron
American bittern
Black tern
Least bittern
King rail

Yellow-crowned night heron Spotted turtle Western smooth green snake

Franklin's ground squirrel Blanding's turtle

Bald eagle

Myotis sodalis

(Falco peregrinus) \*Migratory

(<u>Cirsium pitcheri</u>) (<u>Ardea herodias</u>)

(<u>Botaurus lentiginosus</u>) (<u>Chlidonis niger</u>)

(<u>Ixobrychus exilis</u>) (<u>Ralus elegans</u>)

(Nycticorax violaceous)

(Clemmys guttata)
(Opheodrys vernalis)
(Spermophilus franklini)
(Emydoidea blandingi)

(<u>Haliaeetus leucocephalus</u>) \*Historical

This endangered species list constitutes informal consultation only, and is not intended to fulfill the requirement of Section 7 of the Endangered Species Act of 1973, as amended. If, after review of the Phase I Remedial Investigation report, it appears likely that any endangered species may have been/may be affected by this site, it may be necessary to initiate formal consultation. If as a result of further consultation, a "no effect" determination is made regarding endangered species, that determination should be revisited after 1 year for new information newly listed species.

Table 4. List of wildlife species observed utilizing the wetland habitats at the American Chemical Services site, Griffith, Indiana April 10-11, 1990.

Scientific Name	Common Name
BIRI	DS
Agelaius phoeniceus	Red-winged blackbirds (many)
<u>Aix sponsa</u>	Wood ducks (1 pair)
Anas platyrhynchos	Mallard ducks (2 pairs)
<u>Branta canadensis</u>	Canada geese (1 pair)
Charadrius vociferus	Killdeer (1)
Corvus brachyrhynchos	Common crows (many)
Dendrocopos pubescens	Downy woodpeckers (2)
D. villosa	Hairy woodpeckers (1)
Larus spp.	Gulls (many)
Phasianus colchicus	Ring-necked pheasant (1 male)
Regulus satrapa	Golden-crown kinglets (2)
Richmondena cardinalis	Cardinals (3)
Spinus tristis	American goldfinches (1 pair)
МАММ	ALS
Procyon lotor	Raccoon (tracks)
Odocoileus virginianus	White-tailed deer (tracks)
Ondatra zibethicus	Muskrats (3) & den
Sylvilagus floridanus	Eastern cottontails (4)

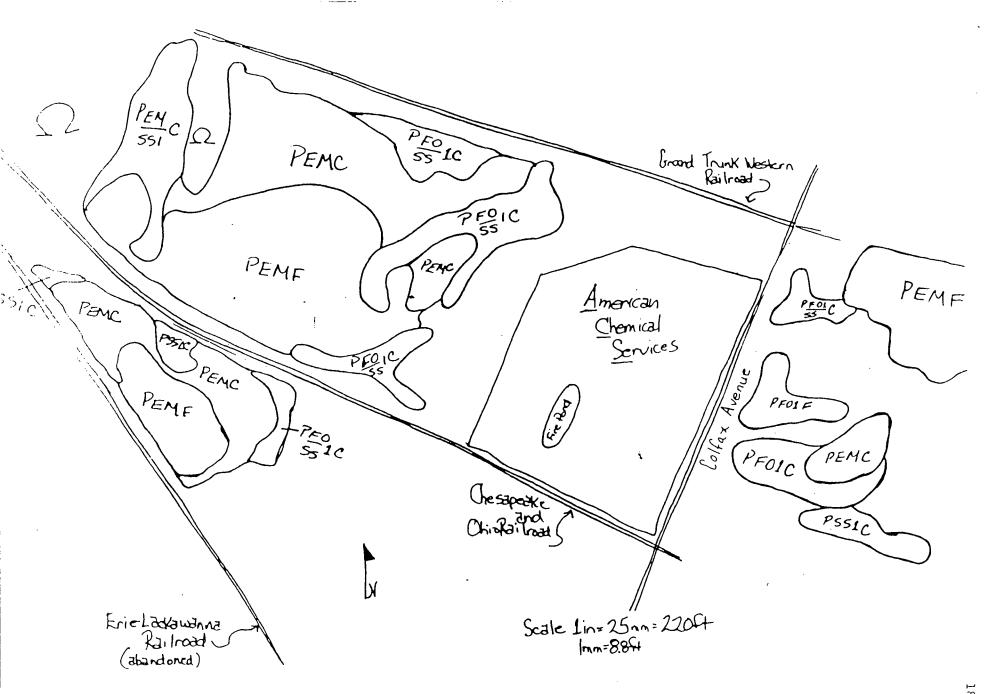


FIGURE 6. Approximate locations and classifications of additional wetlands located near the ACS site, east across. Colfax Avenue, Griffith, Indiana.

# CONCLUSIONS

- 1. Wetlands identified on the NWI do exist at the American Chemical Services site.
- 2. There are wetlands present at the site that are not identified on the NWI. These wetlands consist of palustrine, forested, and scrub-shrub transitional zones between the NWI-identified emergent wetland and upland areas.
- 3. The wetlands present at the site provide habitat diversity for a variety of wildlife species.
- 4. The wetlands present on the site possess potential habitat for federal threatened and endangered species, state and federal species of special concern/emphasis, and other birds protected by the Migratory Bird Treaty Act.

#### Literature Cited

- Eggers, S.D. and D.M. Reed. 1987. Wetland Plants and Plant Communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District. 201pp.
- Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service, Washington, D.C. Cooperative technical publication, 76 pp. plus appendices.
- Reed, P.B. 1988. National List of Plant Species that occur in Wetlands-Indiana, National Wetland Inventory, St. Petersburg. 23pp. plus lists.
- U.S.D.A. Soil Conservation Service. 1986. Hydric Soils of the State of Indiana.
- . 1972. Soil Survey of Lake County, Indiana. U.S. Government Printing Office, Washington; 94 pp plus appendices.

#### APPENDIX 1

#### References

- Ellis, W.H. and E.W. Chester. 1971. Spring Wildflowers of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 60pp.
- . 1973. Summer and Fall Wildflowers of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 71pp.
- . 1980. Trees and Shrubs of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 71pp.
- Eggers, S.D. and D.M. Reed. 1987. Wetland Plants and Plant Communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District. 201pp.
- Illinois Department of Conservation. 1988. A Field Guide to the Wetlands of Illinois. IDOC. 244pp.
- Knobel, E. No Date. Identify Trees and Shrubs by Their Leaves; A Guide to Trees and Shrubs Native to the Northeast. Dover Publications, Inc., New York 47pp.
- Mitchell, A. 1979. Spotter's Guide to Trees of North America. Mayflower Books; New York. 64pp.
- Parsons, F.T. 1961. How to Know the Ferns. Dover Publications; New York. 215pp.
- Peterson, R.T. and M. McKenny. 1968. A Field Guide to Wildflowers; Northeastern and North-central North America. Houghton Mifflin Company; Boston. 420pp.
- Petrides, G.A. 1988. A Field Guide to Eastern Trees; Eastern United States and Canada. Houghton Mifflin Company; Boston. 272pp.
- Phillips, H.C. 1974. Lichens and Ferns of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 60pp.
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. The University of North Carolina Press; Chapel Hill. 1183 pp.
- Symonds, G.W.D. and S.V. Chelminski. 1958. The Tree Identification Book; a New Method for the Practical Identification and Recognition of Trees. Quill Publishing Company; New York. 272pp.
- \_\_\_\_\_. and A.W. Merwin. 1963. The Shrub Identification Book; The Visual Method for the Practical Identification of Shrubs, Including Woody Vines and Ground Covers. William Morrow and Company; New York. 379pp.

APPENDIX 2
Field Data Forms

	Do normal environmental conditions exist at the plant community?  Yes No (If no, explain on back)  Has the vegetation, soils, and/or hydrology been significantly disturbed?  Yes No (If yes, explain on back)
Local Control of the state of t	Dominant Plant Species    Indicator   Status   Stratum   Dominant Plant Species   Status   Stratus   Strat
	Matrix Color: N2/O Black Mottle Colors:  Other hydric soil indicators: Saturater!
es	Matrix Color: N2/O Black Mottle Colors:
es	Matrix Color: N2/O Black Mottle Colors:
es	Matrix Color:
	Matrix Color: N2/O Black Other hydric soil indicators: Saturated:  Is the hydric soil criterion met? Yes X No Rationale: It would be Colored: Yes

8-2

13 at 8 nonemet

21 sol :

Project/Site: ACS Applicant/Owner: EPA	,		Ciais TN	Causas	IAKE	-
Applicant/Owner: EPA		Plac	Community #	Name: B	<u></u>	
Note: If a more detailed site descr	iption is nec	essary, us	e the back of d	ata form or a fir	eld notebook.	
Do normal environmental condition	s exist at th	e plant co	mmunity?			
Yes No (If no, expla		, p.d 00	· · · · · · · · · · · · · · · · · · ·			
Has the vegetation, soils, and/or h	ydrology be	en significa	antly disturbed?			
Yes No (If yes, expla						
			TATION			
	Indicator				Indicator	
Dominant Plant Species	Status		Dominant Plan		Status	Str
1. Typha latifolia						
2. Vitis vulping			The state of the s			11000000
3. En Lucis es alexan						10 To
4. Stena not	40					
5						
6. ————————————————————————————————————			The second secon			_
8						
10.						1000
10.			15	54		
Percent of dominant species that	are OBL, FA	CW, and	or FAC	2010		
Is the hydrophytic vegetation crite	rion met?	YAS V	No			
Series/phase: Maunee los Is the soil on the hydric soils list?	amy fran	SC No	DILS Subgrou Undeterm	ined		cle
Series/phase: Maumee los Is the soil on the hydric soils list? Is the soil: Mottled? Yes Matrix Color: N Other hydric soil indicators: Is the hydric soil criterion met? Yes Is the hydric soil criterion met?	Yes V No V Rlack	No Nottle	Subgrou Undeterm pedon present? Yes N	Yes N	10 10	c.15
Series/phase: Maunee los Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Other hydric soil indicators: — M	Yes V No V Rlack	No Nottle	Subgrou Undeterm pedon present? Yes N	Yes N	10 10	c/6
Series/phase: Maunee los Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Other hydric soil indicators: Is the hydric soil criterion met? Yes Rationale: Chro	Yes V No V No V Rlack Yes V Yma Cy	No_Histia epip Gleyed?  Mottle  No_Hottle	Subgrou  Undeterm pedon present? Yes N Colors:	Yes N	10 <u>k</u> i	_
Series/phase: Maunee los Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Other hydric soil indicators: Is the hydric soil criterion met? Yes Rationale: Chro	Yes V No V No V Rlack Yes V	No_Histia epip Gleyed?  Mottle  No_Hottle	Subgrou  Undeterm pedon present? Yes N Colors:	Yes N	10 <u>k</u> i	_
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Series/phase: Maunee los Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Other hydric soil indicators: Is the hydric soil criterion met? Yes Rationale: Chro	Yes V Yes V Yes V Yes V No V Soil probe h	No Hyprical	Subgrou  Undeterm pedon present? Yes Colors:	Yes No	~ 10 inc	_
Series/phase: Maunee loss Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Other hydric soil indicators: Is the hydric soil criterion met? Yes Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit. List other field evidence of surface	Yes V Yes V Yes V Yes V Soil probe h	No	OLOGYSurface wateraction.	Yes No	~ 10 inc	
Series/phase: Maunee los Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Other hydric soil indicators: Is the hydric soil criterion met? Yes Rationale: Vert S	Yes V Yes V Yes V Yes V No Vsoil probe h inuncation	No Mottle  No Mottle  No HYDR  No ole: or soil satu	OILS  Subgrou  Undeterm pedon present? Yes Colors:  OLOGY Surface wat	Yes N	~ 10 inc	
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Series/phase: Maunee loss Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0  Other hydric soil indicators: Is the hydric soil criterion met? Yes Rationale: VNCC Series Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion of Rationale:  JURIS Is the plant community a wetland?	Yes V No V Rlack Yes V Yes V Yes V Soil probe h inuncation met? Yes	No No Histic epig Gleyed? Mottle No Hydra No or soil satural No	OLOGY Surface wat  MINATION AND	Yes No	~ 10 inc	
Series/phase: Maunee loss the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0  Other hydric soil indicators: White the hydric soil criterion met? Yes attionale: Wheel's clave Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit. List other field evidence of surface Is the wetland hydrology criterion of Rationale: White June 19 JURIS Is the plant community a wetland? Rationale for jurisdictional decision.	Yes V No V Res V Yes V No V Soil probe h inuncation met? Yes	No	OLOGY Surface wat  MINATION AND	Yes No	~ 10 inc	
Series/phase: Maunee loss sthe soil on the hydric soils list? Is the soil a Histosol? Yes	Yes V No V Rlack Yes V Yes V No V Soil probe h inuncation met? Yes	No	OLOGY Surface watermark of the colors of the	Yes No	10 inc	
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Series/phase: Maunee loss sthe soil on the hydric soils list? Is the soil a Histosol? Yes	Yes V No V Rlack Yes V Yes V No V Soil probe h inuncation met? Yes	No	OLOGY Surface watermark of the colors of the	Yes No	10 inc	

Field Investigator(s): K. Nin			State: I	N Cour	nty LAK	E	
Applicant/Owner:EPA				ty #/Name: _			
Note: If a more detailed site descr						abook	
							-
Do normal environmental condition		ne plant co	mmunity?				
Yes _ No (If no, expla	in on back)						
Has the vegetation, soils, and/or hy	ydrology be	en signific	antly disturb	ed?			
Yes (If yes, expla	in on back)						
							-
	Indicator		TATION			Indicator	
Dominant Plant Species	Status		Dominant	Plant Species		Status	
	TAC+	Stratom					-
1. Pepula de lides							-
2. Pulas villosa (wobkts							-
3. enected sensitates							-
5 Sally exique						Control of the second	
7. 11 yesa sylvatica	FACUL	- ( NO+ )					
8 Lyriodendia tulipefera							
9. Sedge sep							
10.			20			THE R.	
10.				06 79	1		
Percent of dominant species that	are OBL, F.	ACW, and	or FAC	00111	0		
Is the hydrophytic vegetation crite	rion met?	Yes V	No				
Rationale:		all one of the					
Series/phase: Mauriner lua-	my fine	No_	OILS ——— Sub Unde	group:2 7.	pic lin	plagu	1
Series/phase: Maurice luals the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: N 2/0 Blace Other hydric soil indicators:	No	No Histic epi Gleyed? Mottle	Sub Unde pedon press Yes Colors:	No		plagu -	1
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Blac  Other hydric soil indicators: W  Is the hydric soil criterion met?	No V	No Histic epi Gleyed? Mottle	Sub Unde pedon prese Yes Colors:	_ No			1
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Blac  Other hydric soil indicators:	No V	No Histic epi Gleyed? Mottle	Sub Unde pedon prese Yes Colors:	No		- - -	
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Blac  Other hydric soil indicators: W  Is the hydric soil criterion met?	No V	No_Histic epi Gleyed? Mottle	Sub Unde pedon prese Yes Colors:	No		plagu -	
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Blace Other hydric soil indicators: White soil criterion met?  Rationale: N14445 Chrore	No V	No_Histic epi Gleyed? Mottle	SubUnde pedon press Yes Colors:	No	-		1
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Blace Other hydric soil indicators: White soil criterion met?  Rationale: Nitets Chrare  Is the ground surface inundated?	Yes_	No_Histic epi Gleyed? Mottle	SubUnde pedon press Yes Colors:	No	-		
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Black Other hydric soil indicators: White soil criterion met?  Rationale: Miter's Chrore  Is the ground surface inundated?  Is the soil saturated? Yes	YesNo	No_Histic epi Gleyed? Mottle No_HYDR No_HYDR	Sub- Unde pedon press Yes Colors:  OLOGY Surface	No	-		
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Blace Other hydric soil indicators: White soil criterion met?  Rationale: Nitets Chrare  Is the ground surface inundated?	Yes	No Histic epi Gleyed? Mottle  No HYDR No	Sub- Unde pedon press Yes Colors:  OLOGY Surface	No	-		
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Black Other hydric soil indicators: White soil criterion met?  Rationale: Mite C fire recommendated?  Is the ground surface inundated?  Is the soil saturated? Yes  Depth to free-standing water in pit List other field evidence of surface	Yes	No_Histic epi Gleyed? Mottle No_HYDR No_HYDR or soil sati	Sub- Under pedon press Yes Colors:  OLOGY Surface	No			
Is the soil: Mottled? Yes  Matrix Color: N 2/0 Black Other hydric soil indicators: White soil criterion met?  Rationale: Miter's Chronic  Is the ground surface inundated?  Is the soil saturated? Yes  Depth to free-standing water in pit	Yes	No_Histic epi Gleyed? Mottle No_HYDR No_HYDR No_Foole: or soil sati	Sub Unde pedon press Yes Colors:  OLOGY Surface	water depth:			
Is the soil: Mottled? Yes Matrix Color: N 2/0 Blace Other hydric soil indicators: — W Is the hydric soil criterion met? Rationale: nivets Chrore  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion in Rationale: ————————————————————————————————————	Yes	No_Histic epi Gleyed? Mottle No_HYDR No_HYDR No_HOle: Or soil sati	Sub Under pedon press Yes Colors:  OLOGY Surface uration.	water depth:			
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Is the soil: Mottled? Yes Matrix Color: N 2/0 Black Other hydric soil indicators: White Soil criterion met? N Rationale: Miret Chrown  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale: JURI Is the plant community a wetland?	Yes	No Histic epi Gleyed? Mottle No HYDR No hole: or soil sati	Sub Unde pedon press Yes Colors:  OLOGY Surface  uration.	water depth:	IALE		
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Is the soil: Mottled? Yes Matrix Color: N 2/0 Black Other hydric soil indicators: White Soil criterion met? Is the hydric soil criterion met? Rationale: Mreets Chrory  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale:  JURI Sthe plant community a wetland? Rationale for jurisdictional decision.  This data form can be used for the	Yes	No Histic epi Gleyed? Mottle No HYDR No hole: or soil sati	Sub Unde pedon press Yes Colors:  OLOGY Surface  uration.	water depth:	IALE		

	Field Investigator(s): K. Nim. Project/Site: ACS			State: _	IN	Date:	ALE	
	Applicant/Owner: _EPA  Note: If a more detailed site descrip				unity #/Nan		d notebook.	
	Do normal environmental conditions Yes No (If no, explain Has the vegetation, soils, and/or hy Yes No (If yes, explain	s exist at the n on back) drology bee	e plant co	mmunity?	?			•
	Deminant Black Socials	Indicator		TATION			Indicator	· · · · ·
want dogwood	Dominant Plant Species	Status	Stratum	-	int Plant Sp		Status	Stratum
nd bar willow	2. DULIN EXLAUR	OBL		12				
y John	3. Ulmis rittera.							-
- two fern	5 Onorlea sersibilis	FACW		15				
ten Strawn- Lig	6. F. aguria Virginiana	FAC-						
	7		·					
	8							
	10.							
12	Percent of dominant species that a				1009	Ó		
+7	Is the hydrophytic vegetation criteri	ion met?	Yes V	No	_+/7. s.			
	Rationale:							*
				ILS				
yes	Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: ID YR 2/1 B Other hydric soil indicators: Is the hydric soil criterion met? Yes Rationale: IIIEEES Chive	No V No V ack	Histic epit Gleyed?  Mottle  No	Yes Colors: _	esent? Ye: No _	No	<u></u>	<u></u>
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	Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit/s List other field evidence of surface in	oil probe ho	No					
As)	Is the wetland hydrology criterion m Rationale:			o				
	JURIS	DICTIONAL	DETER	OTANIM	N AND RA	TIONALE		
	Is the plant community a wetland? Rationale for jurisdictional decision	Yes	No					
	This data form can be used for the Assessment Procedure. Classification according to "Soil Ta	Hydric Soil				the Plant Co	emmunity	

	Project/Site: ACS	15		1	_ Date:				
	Applicant/Owner: EPA			State: IN		LAKE			
	Note: If a more detailed site descri			the back of dat					
	Do normal environmental condition		e plant co	mmunity?					
	Yes No (If no, explai								
	Has the vegetation, soils, and/or hy		n significa	antly disturbed?					
	Yes No (If yes, expla	in on back)							
		Indicator	VEGE	ТАПОН		Indicator			
	Dominant Plant Species	Status	Stratum	Dominant Plant	Species	Status	Stratum		
hite oak	1. Quercus alla	FACY		11.					
touk	2. Queveis Coccinea	Noise		12					
	3.	-44		12 13 14					
tapara.	4. Dalared modes	770		14			-		
a way	6. Vitis aestivalis	FHCU		15					
hmer Crape	7. Spires alba	FALLST	-						
il shect	8			18.					
	9								
	10.			20					
	Percent of dominant species that a	are OBL. FA	CW, and	or FAC S	070				
	Is the hydrophytic vegetation criter	rion met?	Yes V	No					
9	Rationale:								
3									
	DI: C. 16		SC	ILS	-				
	Series/phase: Plainfield fi	ne San	d	Subgroup	12 Typic L	ldipsomm	ents		
	Is the soil on the hydric soils list? Yes No Undetermined No Histic epipedon present? Yes No								
	Is the soil a Histosol? Yes No Histic epipedon present? Yes No Is the soil: Mottled? Yes No Gleyed? Yes No								
	Is the soil: Mottled? Yes Matrix Color: D 7R 3/3 Der	K hiowi	Gleyed?	Colors:	·—				
	Other hydric soil indicators: ——		MOITIE						
NO	Is the hydric soil criterion met? Y	es	No V						
	Rationale:								
							285)		
			HYDR	OLOGY					
	Is the ground surface inundated?	Yes	No 1	Surface water	r depth:				
	Is the soil saturated? Yes	No V							
•	Depth to free-standing water in pit/				The state of the s				
	List other field evidence of surface	inundation	or soil satu	uration.					
no	Is the wetland hydrology criterion n	net? Yes	N	0.1/					
	Rationale:	Marine and Marine and Control of the							
	JURIS	DICTIONA	L DETER	DIA NOITANIM	RATIONALE				
					7				
	Is the plant community a wetland?								
	Rationale for jurisdictional decision								
	1								
	This data form can be used for the	Hydric So	Assussn	nent Procedure a	nd the Plant C	Community	•		
	Assessment Procedure. <sup>2</sup> Classification according to *Soil T	avonomy.							
	Classification according to 3011 1	axonomy.							

Project/Site: ACS	Ims	- State: IN	Date:	TYE
Applicant/Owner: _ EPA	Pla	nt Community #/Na	me:N	
Note: If a more detailed site desc	ription is necessary, u	se the back of data	form or a field n	otebook.
	<del>-</del>			
Do normal environmental condition	ns exist at the plant co	ommunity?		
Yes No (If no, expla				
Has the vegetation, soils, and/or h		cantly disturbed?		
Yes No (If yes, expl	ain on back)			
		ETATION		
0	Indicator			Indicato
Dominant Plant Species		Dominant Plant		Status
1. Querous aplea	FACU:	. 11		
2. Querus cacaneo	- None	12.		
3. Ludwigia alandulosa	061	. 13		
4. Po Durius Fremoides	FAC	14		
5. Galeson aparene	FACU			
m 6. Beris esculenta	FACU			
7				
8				
9				
40		20		
Percent of dominant species that is the hydrophytic vegetation crite	- ODL 540W	UD	PD	
Percent of dominant species that	are OBL, FACW, and	Vor FAC 10		
is the try stop by the together state	erion met? Yes	_ No _		
Rationale:				
Series/phase: Plain field fire Is the soil a History? Yes	Yes No	OILS Subgroup: Undetermine	2 Typic Udiy	sammt
Series/phase: Plain field 4 in Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.578 46 st. Other hydric soil indicators: Is the hydric soil criterion met?	Yes No Histic ep No Gleyed?	Subgroup: Undetermine ipedon present? Y Yes No Golors:	'es No _	54 mmt
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.578 4/6 s4 Other hydric soil indicators:	Yes No Mottle Yes No No Mottle Yes No No Mottle	Subgroup: Undetermine ipedon present? Y Yes No Golors:	'es No	5ammt
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.5 7R 4/6 54 Other hydric soil indicators: Is the hydric soil criterion met?	Yes No Gleyed?	Subgroup: Undetermine ipedon present? Y Yes No Golors:	'es No	54 mmt
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.578 4/6 s4 Other hydric soil indicators: ————————————————————————————————————	Yes No Gleyed?  Yes No Gleyed?  Yes No HYDE	Subgroup: Undetermine sipedon present? Y Yes No Golors:	'es No	54 mmt
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.57R 4/6 s4 Other hydric soil indicators: ————————————————————————————————————	Yes No Histic ep No Histic ep No Gleyed? Here brown Mottle Yes No	Subgroup: Undetermine sipedon present? Y Yes No Golors:	'es No	54 mmt
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.578 4/6 s4 Other hydric soil indicators: Is the hydric soil criterion met? Rationale:  Is the ground surface inundated? Is the soil saturated? Yes	Yes No HYDE	Subgroup: Undetermine ipedon present? Y Yes No Golors: ROLOGY Surface water	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.57R 4/6 s4 Other hydric soil indicators: ————————————————————————————————————	Yes No HYDE  Yes No Histic ep  No Gleyed?  HYDE  Yes No HYDE  No HYDE  No HYDE  No HYDE  No HYDE  No HYDE	Subgroup: Undetermine ipedon present? Y Yes No Golors: ROLOGY Surface water	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.578 4/6 s4 Other hydric soil indicators: ————————————————————————————————————	Yes No HYDE  Yes No Histic ep  No Gleyed?  HYDE  Yes No HYDE  No HYDE  No HYDE  No HYDE  No HYDE  No HYDE	Subgroup: Undetermine ipedon present? Y Yes No Golors: ROLOGY Surface water	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.578 4/6 s4 Other hydric soil indicators: ————————————————————————————————————	Yes No Histic ep No Gleyed?  Yes No Histic ep No Hottle  Yes No Hype  Itsoil probe hole:  In inundation or soil sa  mel? Yes No Hype  Yes No Hype  In inundation or soil sa	Subgroup: Undetermine ipedon present? Y Yes No a Colors:  ROLOGY Surface water turation.	depth:	-
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.57R 4/6 s.4.  Other hydric soil indicators: ————————————————————————————————————	Yes No Histic ep No Gleyed?  Yes No Histic ep No Hottle  Yes No Hype  Itsoil probe hole:  In inundation or soil sa  mel? Yes No Hype  Yes No Hype  In inundation or soil sa	Subgroup: Undetermine ipedon present? Y Yes No Colors:  ROLOGY Surface water turation.	depth:	-
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.5 TR 4/6 s4 Other hydric soil indicators: Is the hydric soil criterion met? Rationale:  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale:  JURI	Yes No Histic ep No Gleyed? Yes No Hyps Yes No Hyps Yes No Hyps Yes Yes No Hyps Isoli probe hole: Isolictional Determination or soil sa	Subgroup: Undetermine ipedon present? Y Yes No a Colors:  ROLOGY Surface water turation.	depth:	-
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.57R 4/6 s4 Other hydric soil indicators: Is the hydric soil criterion met? Rationale:  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale:  JURI Is the plant community a wetland?	Yes No Histic ep No Histic ep No Gleyed? Yes No  HYDE Yes No  Visoil probe hole: Is inundation or soil sa met? Yes I	Subgroup: Undetermine ipedon present? Y Yes No a Colors:  ROLOGY Surface water turation. No	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.5 TR 4/6 s4/6 Other hydric soil indicators: Is the hydric soil criterion met? Rationale:  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale:  JURI Is the plant community a wetland? Rationale for jurisdictional decision	Yes No Histic ep No Histic ep No Histic ep No Histic ep No Hottle Yes No HYDR Yes No No HYDR Yes HISDICTIONAL DETERMENT.	Subgroup: Undetermine ipedon present? Y Yes No a Colors:  ROLOGY Surface water turation. No AMINATION AND F	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.5 TR 4/6 s4/6 Other hydric soil indicators: Is the hydric soil criterion met? Rationale:  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale:  JURI Is the plant community a wetland? Rationale for jurisdictional decision	Yes No Histic ep No Histic ep No Gleyed? Yes No  HYDE Yes No  Visoil probe hole: Is inundation or soil sa met? Yes I	Subgroup: Undetermine ipedon present? Y Yes No a Colors:  ROLOGY Surface water turation. No AMINATION AND F	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.57R 4/6 s4/6 Other hydric soil indicators: ————————————————————————————————————	Yes No Gleyed?  Yes No Gleyed?  Yes No Whistic ep No Hydre  Yes No Whistic ep No Whist	Subgroup: Undetermine ipedon present? Y Yes No Golors: ROLOGY Surface water turation. No	depth:	
Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.5 TR 4/6 s4/6 Other hydric soil indicators: Is the hydric soil criterion met? Rationale:  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit List other field evidence of surface Is the wetland hydrology criterion Rationale:  JURI Is the plant community a wetland? Rationale for jurisdictional decision	Yes No Gleyed?  Yes No Gleyed?  Yes No Whistic ep No Hydre  Yes No Whistic ep No Whist	Subgroup: Undetermine ipedon present? Y Yes No Golors: ROLOGY Surface water turation. No	depth:	
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Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: 7.57R 4/6 s4/6 Other hydric soil indicators: ————————————————————————————————————	Yes No Histic ep No Gleyed? No Gleyed? Yes No HYDE Yes No HYDE Yes No HYDE Yes No HYDE Yes No HISTIC Ep No HYDE Yes No HYDE Yes No HISTIC Ep No HYDE Yes No HISTIC Ep No HYDE Yes No HISTIC Ep No HISTIC	Subgroup: Undetermine ipedon present? Y Yes No Golors: ROLOGY Surface water turation. No	depth:	

	Project/Site: A: State: TN County LAKE  Applicant/Owner: E/A Plant Community #/Name: R  Note: If a more detailed site description is necessary, use the back of data form or a field notebook.
	Do normal environmental conditions exist at the plant community?  Yes No (If no, explain on back)  Has the vegetation, soils, and/or hydrology been significantly disturbed?  Yes No (If yes, explain on back)
	VEGETATION Indicator
on wood	Dominant Plant Species Status Stratum Dominant Plant Species Status Stratum
an wood	1. Equius de Hoides FACT 11. Fragaria Manie FAC Corrona
arry 110	2. Francis pennsylvania + FCG - 12.
erdogue	Lornes Italonifora FACW 14.
w, c	5. Competinico areosco nore 15.
ا من دار	6. Roda Carolina FACU- 16.
present	8 adremonia consistera FACT 18.
morely	9. Walium aparine Fixy 19.
umu) d	10. Sandreise canade ma FACH 20.
stdericer	Percent of dominant species that are OBL, FACW, and/or FAC 62.570
	Is the hydrophytic vegetation criterion met? Yes No
20	Rationale:
N.	
U	Series/phase: Mainfield fine sand Subgroup: Typic Udio Samments
	Is the soil on the hydric soils list? Yes No Undetermined
	Is the soil a Histosol? Yes No Histic epipedon present? Yes No
	Is the soil: Mottled? Yes No Gleyed? Yes No
	Matrix Color: DYR 4/4 dark utlander Mottle Colors:
10	Other hydric soil indicators: No
	Rationale:
	HYDROLOGY
	Is the ground surface inundated? YesNoSurface water depth:
	Is the soil saturated? Yes No
	Depth to free-standing water in pit/soil probe hole:  List other field evidence of surface inundation or soil saturation.
no	
	Is the wetland hydrology criterion met? Yes No
	Rationale:
	JURISDICTIONAL DETERMINATION AND RATIONAL F
	JURISDICTIONAL DETERMINATION AND RATIONALE
	JURISDICTIONAL DETERMINATION AND RATIONALE  Is the plant community a wetland? Yes No  Rationale for jurisdictional decision:
	Is the plant community a wetland? Yes No Rationale for jurisdictional decision:
	Is the plant community a wetland? Yes No

	P.C.	DATA							
	DAI		ISITE DE	TERMINATION MI					
	Field Investigator(s): 1. NII Project/Site: ACS	11.3		State: IN	Date: _	LAKE			
	Applicant/Owner: EPA			of Community #/Na					
	Note: If a more detailed site descrip	ption is nec	essary, us	e the back of data	form or a f	ield notebook.			
	Do normal environmental condition: Yes No (If no, explain		e plant co	mmunity?			/-		
	Has the vegetation, soils, and/or hy YesNo(If yes, explai	drology bee	en significa	antly disturbed?					
	0	Indicator		TATION		Indicator			
ttonwood	Dominant Plant Species	Status	Stratum	Dominant Plant	Species	Status	Stratum		
'thjoplar	1. Parawitertata	FACU		11					
x willow	3. Salis rugra	cobil		13					
losier leguers	4. ( Di new stolonifero			14					
to establish	6. Onoclea sensibilis	FACW		16.					
tue fern	7. Ludwigia glandulosa			17.					
dstraw	8. Galler aparine	FACY	-	18.					
olci broom	10. Ralus his oldies	FALW		19					
omp dewlerry	Percent of dominant species that a		CW and/		3				
. 00	Is the hydrophytic vegetation criter								
ges	Rationale:								
0									
	Series/phase: Maume locals the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: IN YE 3/1 yery d.co.	No No	No_ Histic epip Gleved?	pedon present? Y	es !		ا ال		
0	Other hydric soil indicators:								
9	Is the hydric soil criterion met? You Rationale: n.cet S Chife Estate		No Eria						
	HYDROLOGY  Is the ground surface inundated? Yes No Surface water depth:								
	Is the ground surface inundated?  Is the soil saturated? Yes	Yes	· No V	_ Surface water	depth:				
yes	Depth to free-standing water in pit/s List other field evidence of surface in	oil probe h		iration.					
	Is the wetland hydrology criterion met? Yes No Rationale:								
	JURISDICTIONAL DETERMINATION AND RATIONALE								
	Is the plant community a wetland? Rationale for jurisdictional decision:								
	1 This data form can be used for the Assessment Procedure. 2 Classification according to "Soil Ta	Hydric So			d the Plant	Community			

	Project/Site: A State: State: State: County: LAKE  Applicant/Owner: Plant Community #/Name: S  Note: If a more detailed site description is necessary, use the back of data form or a field notebook.								
	Do normal environmental conditions exist at the plant community?  Yes No (If no, explain on back)  Has the vegetation, soils, and/or hydrology been significantly disturbed?  Yes No (If yes, explain on back)								
King Aspten  oak  viotoak  pak  Dienard	Dominant Plant Species  Status Stratum Dominant Plant Species  1. Populus tremoides 2. Quercus palustris 3. Quercus palustris 4. Quercus palustris 4. Quercus palustris 5. Rhus copetlines 6. Cornus Stotonifus 6. Cornus Stotonifus 7000  VEGETATION  Indicator  Status Stratum Dominant Plant Species  Status Stratum 11. Tringgram Conditions 12. Vertical unit this put 12. Vertical unit this put 13. Augusta vergiance 14. 15. Rhus copetlines 16.								
hoketery anchemo itus fich she	7. Atomia ar but its list none - 17.  8. Salix migra cbl: 18.  9. Circular Servation: FACW 19.  10. Ptens esculation have 20.  Percent of dominant species that are OBL, FACW, and/or FAC 100%  Is the hydrophytic vegetation criterion met? Yes No								
3,0	Series/phase:    Soils   Soils   Soils   Subgroup:   Soils   Subgroup:   Soils   Subgroup:   Subgroup:								
no.	Is the ground surface inundated? Yes No Surface water depth: Is the soil saturated? Yes No Surface water depth: Depth to free-standing water in pit/soil probe hole: List other field evidence of surface inundation or soil saturation.								
	Is the welland hydrology criterion met? Yes No  Rationale:								
	Is the plant community a wetland? Yes No  Rationale for jurisdictional decision:  1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community  Assessment Procedure.  2 Classification according to "Soil Taxonomy."								

	DATA FORM  ROUTINE ONSITE DETERMINATION METHOD <sup>1</sup>						
	D Ali		DUSITE DETERMINATION WETHOU.				
	Field Investigatog(s): NIM Project/Site: # 55	11.5		c. ta	Date:	PE	
	Applicant/Owner:EPA			State: IN	Name:	-L_	
	Note: If a more detailed site descrip	otion is nec	essary, us	e the back of d	ata form or a field i	notebook.	
	Do normal environmental conditions Yes No (If no, explair Has the vegetation, soils, and/or hy Yes No (If yes, explair	on back) drology bee					
			VEGE	TATION			
		Indicator				Indicator	
	Dominant Plant Species	Status	Stratum	Dominant Pla	nt Species	Status	Stratum
iverworts	1. Ricciocarpus naturas	none		11			
	2. Recora fluitans	none	7-	12.	unbunkener	7	
ond-leaf catteil	4. Tuesta latitolica	FACY	(w)	14.		-	
ood-leat catteri	5.	5.41		15			
1	6			16			
I .	7			17			
	8						
	9			19			
	10.			20.	00%		
d's	Percent of dominant species that a ls the hydrophytic vegetation critering Rationale:	on met?	Yes	No	0078		
300	Series/phase: Maurie loan Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: A) 2/0 Other hydric soil indicators: (LAP) Is the hydric soil criterion met? Yes Rationale: (MERTE)	No L	No Histic epip Gleyed? Mottle tactice No	Undetermoded on present? Yes Colors:	Yes No No		
u.:	Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit/s List other field evidence of surface in	oil probe he	No		er depth: 617.	-12,.	1048
)	Is the wetland hydrology criterion m Rationale:						
	JURIS	DICTIONAL	L DETER	INA NOITANIM	RATIONALE		
	Is the plant community a wetland? Rationale for jurisdictional decision.		Street and the state of the state of the				

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
Classification according to "Soil Taxonomy."

B-2

Project/Site: ACS Applicant/Owner: FPA Note: If a more detailed site descri		Plan	it Community #/Na	me:Y		
Do normal environmental condition Yes No (If no, explain the vegetation, soils, and/or high yes No (If yes, explain the vegetation)	in on back) ydrology bee	en significa				
	Indicator		TATION		Indicator	
Dominant Plant Species	Status	Stratum	Dominant Plant S	pecies	Status	Stratur
1. Typha angustatolia			12. ————————————————————————————————————			
5. ————————————————————————————————————			15			
7						
8.						
9						
Percent of dominant species that				•		
Series/phase: Muumee lod	Liny fine	S	DILS	Time	Hadac	/15
Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: Al 2/0 Other hydric soil indicators: Is the hydric soil criterion met? Rationale: Meet Arc	Yes No No V	No Histic epi Gleyed? Mottle	Undetermine pedon present? Yo Yes No Colors:	os N	10	
Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: Al 2/D Other hydric soil indicators: Is the hydric soil criterion met? Rationale: Meet Arc.  Is the ground surface inundated? Is the soil saturated? Yes Depth to free-standing water in pit	Yes No Yes No Yes No Yes No Yes No Yes No Yes	No	Undetermine pedon present? Yes No Colors:  OLOGY Surface water	depth:	10	nches
Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: Al 2/D Other hydric soil indicators: Is the hydric soil criterion met? Rationale: Meet Color: Is the ground surface inundated? Is the soil saturated? Yes	Yes No Yes No Inundation met? Yes	No Histic epi Gleyed? Mottle CHE NO HYDR No or soil sali	Undetermine pedon present? Yes No No Colors: OLOGY Surface water ouration.	depth:	j-15,	
Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: Al 2/D Other hydric soil indicators: Is the hydric soil criterion met? Rationale:	Yes No Yes No Yes No Inundation met? Yes	No	Undetermine pedon present? Yes No No Colors: OLOGY Surface water ouration.	depth:	,-15,,	
Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color: Al 2/D Other hydric soil indicators: Is the hydric soil criterion met? Rationale:	Yes No Yes No Yes No Inundation Met? Yes SDICTIONAL Yes No	No	Undetermine pedon present? Yes No No Colors: OLOGY Surface water ouration.	depth: -	2-15,	

	0 . 1	m's	TERMINATION ME	Date:	
	Project/Site: Acolicant/Owner: EPA		- State: +N	- County: LA	
	Applicant/Owner:  Note: If a more detailed site descrip	110	int Community #/Na	me:	otebook
		·			- · · · ·
	Do normal environmental conditions		ommunity?		
	Yes No (If no, explain Has the vegetation, soils, and/or hyd				
	Yes No (If yes, explain		cantly disturbed?		
			ETATION		
	Dominant Plant Species	Indicator	Dominant Plant S	ensins	Indicator
	1. Go Hum charry	Status Stratum	Dominant Plant S		Status Stratum
21 de travo	2 The Lyptersis The Lypterode	FACW	_ 11		
a white feed	3. Encolea Sensibilis	FACW			
souled carter!	4. un angustitolia	261			
plack william	6 CORNUS ammonum	+ACW -			
warmy dogued	7 Assessmen and resemite lun	non-	16. ————————————————————————————————————		
dente la silva	A Satix Mayor				
ne view Sweet	9. Spiren Attolia	conte	_ 19		
ne a de la sacc	10.		20.	2 9	
	Percent of dominant species that ar	OBL, FACW, and	Vor FAC 85.	5 16	
1125	Rationale:	on met? Tes 🗸	_ 140		
3					
		S	OILS		
	Series/phase: Housance later	miting Faid	Subgroup:2	Tallers !	plaquella
	Is the soil on the hydric soils list?	Yes No_	Undetermined	d	
	Is the soil a Histosol? Yes				
	Is the soil: Mottled? Yes Matrix Color: N 40 Block	Mottle	Colore:		
Cla	Other hydric soil indicators: Little	The test bound	inumdated		
W-	Is the hydric soil criterion met? Ye	S L. NO			
Û	Rationale: niets of the	with rear	COVE MAINS C		
		uve	201.004		
	Is the ground surface inundated?	HYDI	ROLOGY	6-5	8 inher
	Is the soil saturated? Yes	No No	Surface water o	Jepin:	0 1 110 11
	Depth to free-standing water in pit/so	oil probe hole:			
(10)	List other field evidence of surface in	nundation or soil sa			
SY.	Is the wetland hydrology criterion me	91? Yes - 1	No		
U	Rationale:			· · · · · ·	
	Parill	DICTIONAL DETER	RINATION AND RA	ATIONAL F	
	Is the plant community a wetland? Rationale for jurisdictional decision:	Yes No _			
	1 This data form can be used for the			the Plant Comm	unity
	Assessment Procedure.				
	<sup>2</sup> Classification according to *Soil Ta	Actionly			

DATA FORM

ROUTINE ONSITE DETERMINATION METHOD1 State: IN County LAKE

Plant Community #Name: \_\_\_\_\_\_ Project/Site: -Applicant/Owner: Note: If a more detailed site description is necessary, use the back of data form or a field notebook Do normal environmental conditions exist at the plant community? Yes \_\_\_\_ No \_\_\_\_ (If no, explain on back) Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes \_\_\_\_ No \_\_\_ (If yes, explain on back) VEGETATION Indicator Indicator Dominant Plant Species Status Stratum Dominant Plant Species Status within and tree 11 Rose il itida Stay Exigua Obl MONE \_ 12 Hamanales Vilgiana ite oak 2 Querous valle FACH.
3. Possilis restation FACH. Thruspool . 13. -4 Quercus velution work 14. 120000 or 5. Betile allegemention 110 and bay of the Alpha angusting Obl 8. Sundayen Catholice PHOW-110. Comin stolonifora FACW Is the hydrophytic vegetation criterion met? Yes \_\_\_ No\_\_ Rationale: \_ Is the soil a Histosol? Yes No Histic epipedon present? Yes Is the soil: Mottled? Yes No Gleyed? Yes No Matrix Color: Mottle Colors: Other hydric soil indicators: -Is the hydric soil criterion met? Yes Rationale: 1 (245 CM, Own) HYDROLOGY Is the ground surface inundated? Yes\_ Is the soil saturated? Yes V No Depth to free-standing water in pit/soil probe hole: \_ List other field evidence of surface inundation or soil saturation. Is the wetland hydrology criterion met? Yes \_\_\_\_ No\_\_\_\_ Rationale: JURISDICTIONAL DETERMINATION AND RATIONALE Is the plant community a wetland? Yes \_\_\_\_ No \_\_\_ Rationale for jurisdictional decision: 1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

DATA FORM

<sup>2</sup> Classification according to "Soil Taxonomy."

Project/Site: HOS Applicant/Owner: EPA		—— State; — Plant Comm y, use the ba	unity #/Name: _C.=		
Yes No (If no, explain Has the vegetation, soils, and/or hyd	on back) drology been sig				
5. Justin Coccinea 6. Outron of the 1. 7. Justin of the 1. 8. Botto a Meghania	Indicator Status Stra CEA ACM PACM FACM FACM	tum Domina 11. — 12. — 13. — 14. — 15. — 16. — 17. — 18. — 19. —	ant Plant Species		
Percent of dominant species that are Is the hydrophytic vegetation criteric Rationale:  Series/phase:  Series/phase:  Is the soil on the hydric soils list?  Is the soil a Histosol? Yes  Is the soil: Mottled? Yes  Matrix Color:  Other hydric soil indicators:	Yes No Histik	SOILS SOILS SUA OF S Lepipedon pred? Yes ottle Colors:	determined Sesent? Yes No		uolls
Is the soil saturated? Yes Depth to free-standing water in pit/s. List other field evidence of surface in Is the wetland hydrology criterion me	Yes No No No noil probe hole: nundation or soil et? Yes	Surfa saturation.			
Is the plant community a wetland? Rationale for jurisdictional decision:  1 This data form can be used for the Assessment Procedure.	Yes No	)			
	Project/Site: Applicant/Owner: Project/Site: Applicant/Owner: Note: If a more detailed site description of the companion of t	Applicant/Owner:	Project/Site: Plant Comm Note: It a more detailed site description is necessary, use the back plant community yes No (If no, explain on back)  Do normal environmental conditions exist at the plant community yes No (If no, explain on back)  Has the vegetation, soils, and/or hydrology been significantly dist yes [16] (If yes, explain on back)  VEGETATION Indicator  Dominant Plant Species  Status Stratum Dominate It is provided in the plant community of the plant community a wetland? Yes No Histic epipedon properties the soil attractor? Yes No Gleyed? Yes Status of the plant community a wetland? Yes No Status of the plant community a wetland? Yes No Rationale:  JURISDICTIONAL DETERMINATION of the plant community a wetland? Yes No Rationale:  JURISDICTIONAL DETERMINATION of the plant community a wetland? Yes No Rationale for jurisdictional decision:  1 This data form can be used for the Hydric Soil Assessment Procedure.	Project/Site: HS State: No County Applicant/Owner: EPA Plant Community #/Name: C Note: If a more detailed site description is necessary, use the back of data form or a fet Do normal environmental conditions exist at the plant community?  Plant Community #/Name: C Note: If a more detailed site description is necessary, use the back of data form or a fet Do normal environmental conditions exist at the plant community?  Plant Community #/Name: C Note: C	Project/Site: HOSP Plant Community #Name: Pla

	Project/Site: AC5 Applicant/Owner: LPA Note: If a more detailed site description	All Hess	- Plan	t Community #/N	Date: County: L lame: D la lorm or a nek	AICE	
	Do normal environmental conditions e Yes No (If no, explain o Has the vegetation, soils, and/or hydro Yes No (If yes, explain o	n back) ology bee					
		adiantas	VEGE	TATION		Indicator	
L L		Indicator Status	Stratum	Dominant Plant	Species	Status	Stratum
cont one		none		11	April 19 April 1		
towood				12			
and							
no bells		TAC.					
denved	6. Solitago attissim" +	ACY	STATE OF THE PARTY	16			
roly incid . Le	7. Verbessun Husput			17	,		
are pe	8. Vilis arstivalis						
ease l'est	10. Dipsacus sylvestris	Novie		19			_
easel	Percent of dominant species that are			20.	5040	Mark Holes	
	Is the hydrophytic vegetation criterior	OBL, FA	CW. and	or FAC	00 96		
. 00	Rationale:	111101:	163				
W							
0			so	ILS			
	Series/phase: Transcription is the soil on the hydric soils list? Y	30 r.K	27.00	Subarour	.2 Tupic L	Hisson no	acts
	Is the soil on the hydric soils list? Y	es	No L	Undetermi	ned		
	Is the soil a Histosol? Yes	lo	Histic epip	pedon present?	Yes No		
	Is the soil: Mottled? Yes N	lo	Gleyed?	Yes N	0		
.0	Other hydric soil indicators:		_ Mottle	Colors:			LOGIC LY
10	Is the hydric soil criterion met? Yes		No X				
	Rationale: Trunsected we	1,3/0	كالمفاصين	Loundary	sample	point oil a	ir
	abbuildings railroom used		1 2 2 3				
			HYDR	OLOGY			
	Is the ground surface inundated? Ye		No L	_ Surface water	er depth:		
	Is the soil saturated? Yes						
	Depth to free-standing water in pit/soil List other field evidence of surface income						
20	Elst other here evidence of sorrace inc	meation		oration.			
VO	Is the wetland hydrology criterion met	? Yes_	N	0			
	Rationale:						
	JURISDI	СПОНА	L DETER	DNA NOTANIM	RATIONALE		
	Is the plant community a wetland?	'es	No				
	Rationale for jurisdictional decision:						
	1 This data form can be used for the I-	lydric Soi	I Assessm	nent Precedure a	nd the Plant Co	ommunity	
	Assessment Procedure.						
	<sup>2</sup> Classification according to *Soil Taxo	onomy.					

	Project/Site: Applicant/Owner: FPA  Note: If a more detailed site descript		Plan	State: 3 N at Community #/N te the back of da	Name:	AKE	
	Do normal environmental conditions Yes No (If no, explain Has the vegetation, soils, and/or hyd Yes No (If yes, explain	on back) rology bee					
		Indicator	VEGE	ТАПОН			
	Dominant Plant Species	Status	Stratum	Dominant Plan	Species	Indicator Status	Stratum
Wigia fram file o rose babon wills purthistie	1. Ludwigia glandulosa 2. Galium anurinum 3. Rosa multifloca m4. Saliu exporta 5. Sondius processis	FACU FACU FACU FACU		13 14 15			
Condroct	6. <u>Yanathorhagia Stroplise</u> 7. 8. 9.		<u> </u>	17 18 19 20			
ye	Percent of dominant species that are is the hydrophytic vegetation criterio Rationale:	e OBL, FA	Yes	or FAC	),20		
0	Series/phase: National loads Is the soil on the hydric soils list? Is the soil a Histosol? Yes Is the soil: Mottled? Yes Matrix Color:	Yes V No V	No_ Histic epip Gleyed?	Undetermin	Yes No	DATE OF THE REAL PROPERTY.	dk
	Other hydric soil indicators:  Is the hydric soil criterion met? Yes Rationale: Unvalide to obtain Combanication bordening	501	No V	le-samp	ling point	or vallyo	acs.
			HYDR	OLOGY			
W o	Is the ground surface inundated? Yes	No V	ole:		or depth;		
	Is the wetland hydrology criterion me Rationale:	1? Yes_	N	o_ <u></u>			
	JURISO	ICTIONAL	L DETER	DNA NOITANIM	RATIONALE		
	Is the plant community a wetland? Rationale for jurisdictional decision	Yes	No				
	This data form can be used for the lassessment Procedure. Classification according to "Soil Tax  This data form can be used for the last		l Assessm	ent Procedure a	nd the Plant Co	ommunity	

	Field Investigator(s): L. N. m.S  Project/Site: ACS State: IN County LAKE
	Applicant/Owner:Plant Community #/Name:H  Note: If a more detailed site description is necessary, use the back of data form or a field notebook.
	Do normal environmental conditions exist at the plant community?  Yes No (If no, explain on back)  Has the vegetation, soils, and/or hydrology been significantly disturbed?  Yes No (If yes, explain on back)
	VEGETATION
	Dominant Plant Species Status Stratum Dominant Plant Species Status Stratum
lock how	LI ZIII
" blackberry	2 Kubus canadens 15
ر منو	3. Ludwigia g'andulose obt 13.
belis	4 Stern of their gramineum FAL 14.
in mut	5. Corylus americana TACLI 15
d sow histle	6. Souch is avvenisis TAC- 16.
1 300	7 17
	8 18
	9 19
	10 20
	Percent of dominant species that are OBL, FACW, and/or FAC U090
	Is the hydrophytic vegetation criterion met? YesNo
no	Rationale:
nº	Series/phase: Plant India 1.00 Subgroup: 2
	List other field evidence of surface inundation or soil saturation.
1/0	Is the wetland hydrology criterion met? Yes No V Rationale:
	JURISDICTIONAL DETERMINATION AND RATIONALE
	Is the plant community a wetland? Yes No V Rationale for jurisdictional decision 2.3 feet SE 15 a differ built 3 to 100 t
	This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure. Classification according to "Soil Taxonomy"

	DATA FORM
	ROUTINE ONSITE DETERMINATION METHOD
	Project/Site ACS TOO State IN County LAKE
	Applicant/Owner: Plant Community #/Name Queen Note: If a more detailed site description is necessary, use the back of data form or a field notebook.
	Do normal environmental conditions exist at the plant community?  Yes No (If no, explain on back)
	Has the vegetation, soils, and/or hydrology been significantly disturbed?  Yes No (If yes, explain on back)
	VEGETATION Indicator
Bedstraw	Dominant Plant Species Status Stratum Dominant Plant Species Status Stratum  1. Column aparumum FACY  11.
ensitwefern Toldenrod	2 Onoclea schisibilis ob' 12 12 13 Solida qualitissima FACU 13
ea Junking France	4 Dipsacus sylvestris tione 14 5 Aboulus travoides FAC 15
il rytim	6. Ulmus rubra EAC 16
	8 18
	Percent of dominant species that are OBL, FACW, and/or FAC 60%
y.	Is the hydrophytic vegetation criterion met? Yes No No
	SOILS
	Series/phase: Maurice lacery fine saind Subgroup: Typic Hapla guell's Is the soil on the hydric soils list? Yes _ No _ Undetermined _
	Is the soil a Histosol? Yes No Histic epipedon present? Yes No Is the soil: Mottled? Yes No Gleyed? Yes No
1 , -	Matrix Color: N 2/0 R. Iack Mottle Colors:  Other hydric soil indicators:
6	Rationale: n c : Chrespin regulations of
	HYDROLOGY
	Is the ground surface inundated? Yes No Surface water depth: Is the soil saturated? Yes No
ys.	Depth to free-standing water in ptt/soil probe hole:  List other field evidence of surface inundation or soil saturation.
	Is the wetland hydrology criterion met? Yes No
	JURISDICTIONAL DETERMINATION AND RATIONALE
	Is the plant community a wetland? Yes No
	This data form can be used for the Hydric Soll Assessment Proceetine and the Plant Community  Assessment Procedure
	<sup>2</sup> Classification according to "So: Taxon my."

DATA FORM ROUTINE ONSITE DETERMINATION METHOD1 - County LAKE Project/Sine:-Plant Community #/Name: N > Applicant/Owner: --Note: If a more detailed site description is necessary, use the back of data form or a field notebook. Do normal environmental conditions exist at the plant community? Yes \_\_\_\_ No \_\_\_\_ (If no, explain on back) Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes \_\_\_\_ No \_\_\_\_ (If yes, explain on back) VEGETATION Indicator Indicator Dominant Plant Species Status Stratum Dominant Plant Species Status 1. Populus transloides FAC 2. Carries animonum obl 3. Salix nigra obl 11. -12. -061 13. \_ Jenanthyungramineum FAL 10. Percent of dominant species that are OBL, FACW, and/or FAC 10678 Is the hydrophytic vegetation criterion met? Yes V No Series/phase: Maumee loamy fire Sand Subgroup: Typic
Is the soil on the hydric soils list? Yes V No Undetermined
Is the soil a Histosol? Yes No Histic epipedon present? Yes No Gleyed? Ye Other hydric soil indicators: -Is the hydric soil criterion met? Yes V No
Rationale: Linable to obtain sin ple - area inundated HYDROLOGY No \_\_\_ Surface water depth: 6-9 inches Is the ground surface inundated? Yes Is the soil saturated? Yes \_\_\_\_ No \_\_\_ Depth to free-standing water in pit/soil probe hole: \_ List other field evidence of surface inundation or soil saturation. Is the wetland hydrology criterion met? Yes \_\_\_\_ No\_\_\_\_ Rationale: JURISDICTIONAL DETERMINATION AND RATIONALE Is the plant community a wetland? Yes No Rationale for jurisdictional decision

1 This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community

Assessment Procedure

<sup>2</sup> Classification according to "Soil Taxonomy"



# United States Department of the Interior

IN REPLY REFER TO:

FISH AND WILDLIFE SERVICE BLOOMINGTON FIELD OFFICE (ES) 718 North Walnut Street Bloomington, Indiana 47401 (812)334-4261

June 5, 1990

Mr. Robert Swale (5 HS-11) U.S. Environmental Protection Agency Office of Superfund Waste Management Division 230 South Dearborn Street Chicago, Illinois 60604

Dear Mr. Swale:

Enclosed is the Wetlands delineation report for the American Chemical Services site in Griffith, Indiana, performed under IAG-DW14934313-0.

If you have any questions regarding this report, please contact Robin Nims at FTS 332-4269.

Sincerely yours,

David C. Hudak

Supervisor

Wetlands Delineation at American Chemical Services Hazardous Waste Site, Griffith, Indiana. IAG-DW14934313-0

> Robin A. Nims Fish and Wildlife Biologist U.S. Fish and Wildlife Service 718 North Walnut Street Bloomington, Indiana

> > May 1990

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# Summary

At the request of the U.S. Environmental Protection Agency, Region V, the U.S. Fish and Wildlife Service conducted a wetlands delineation for site wetlands potentially impacted by contaminants originating at the American Chemical Services (ACS) hazardous waste site.

Office review and field surveying indicated numerous wetlands exist at the ACS site, many of which are not identified on the National Wetland Inventory. The diversity of wetland types present provide habitat for a variety of wildlife species.

# INTRODUCTION

The American Chemical Services (ACS) Superfund site is located in Griffith, Indiana on the outskirts of the city's southeast side. The site was placed on the National Priorities List in 1987 as a result of investigations into chemical disposal practices on the site. ACS operates as a chemical/solvent recovery facility, which also has a limited chemical manufacturing operation. During the course of its operations, ACS dumped and otherwise disposed of unrecoverable solvents on the property, in addition to transporting waste to the adjacent Griffith City Landfill. Kapica Drum, Inc. also allegedly disposed of drum-cleaning residues on ACS property. These 3 sites total 52 acres and jointly comprise the official ACS site.

The National Wetland Inventory (Figure 1) indicates numerous and extensive wetlands within a 1-mile radius of the ACS site to the southwest, south, southeast, east, and northeast. There is an extensive wetland complex adjacent to the northwest boundary of the site. These wetlands are dissected and bordered by the Grand Trunk Western Railroad lines, the Chesapeake and Ohio Railroad lines, and the abandoned Erie-Lackawanna Railroad lines. The wetlands to the north of the Grand Trunk Western lines were not within the project boundary limits, however, they are likely hydraulically connected. The NWI map classifies this wetland complex as palustrine, emergent, semi-permanent/plaustrine emergent, seasonally flooded. The entire complex is approximately 78 acres, however, only 50.5 acres were included in the present delineation.

### **OBJECTIVES**

The objectives of this project were:

- To ground-truth and verify wetlands delineated on the National Wetland Inventory maps.
- 2. To identify other wetland areas not included in the National Wetland Inventory.
- 3. To identify dominant vegetation in the various wetland areas.
- 4. To assess relative value of the various wetland habitats for fish and wildlife resources.

#### **METHODS**

The methods utilized in this delineation are outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989). Because of the relative homogeneity of the site, the soils assessment procedure was selected. Prior to the field work, an office review was conducted to preliminarily outline the area in question. Due to the unavailability of the most recent aerial photographs the preliminary boundaries were outlined from a 1984 photograph, obtained from the EPA project manager. Based upon the field inspection, the 1984 photograph was accurate with the exception of approximately 5 additional acres lost to the Griffith Landfill operation.

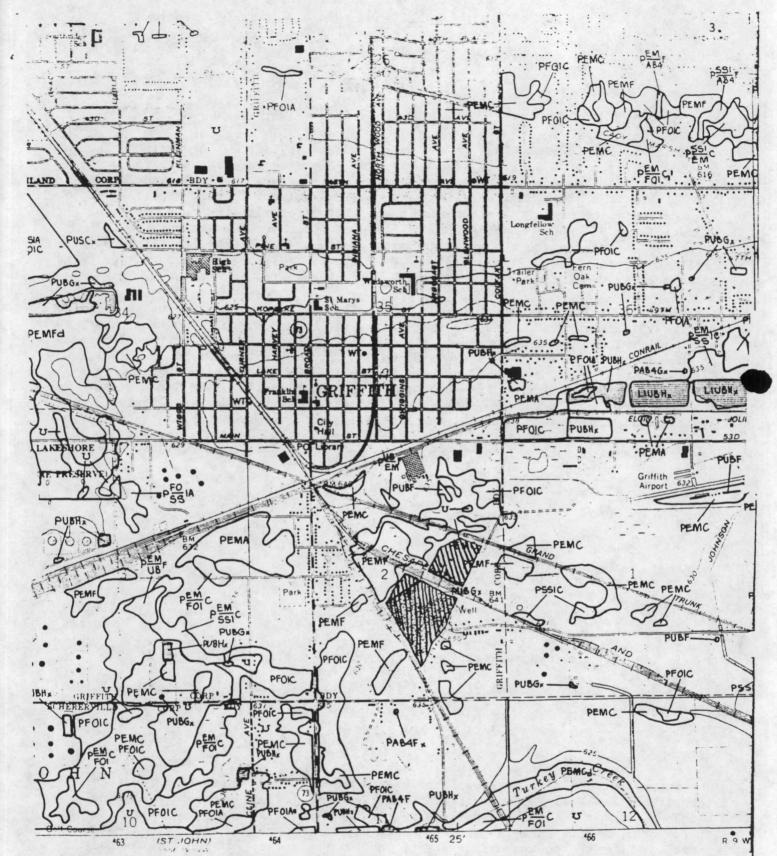


FIGURE 1. National Wetland Inventory map in the vicinity of the American Chemical Service site, Griffith, Indiana. USGS Highland Quadrangle. Cross-hatched area is ACS.

To transfer information from the aerial photograph, a clear plastic overlay was attached and the information transcribed. Points along the visual perimeter of the wetland were randomly selected and their compass bearings recorded to assist in field location. Location of the points followed the general contour of the visual perimeter and were arbitrarily located from 88 to 282 feet apart based upon a scale of 1 inch (in) - 25 millimeters (mm) - 220 feet (ft), 1 mm - 8.8 ft.

The preliminary map generated in the office (Figure 2) was used in the field reconnaissance flagging effort. In the field, point A was located on ground by its position relative to the railroad track embankment and the tree row in the upper northwest corner of the study area. Based upon the preliminary map, point B was located with the use of a Suunto MC-1 mirror compass and was measured off with a tape measure 220 feet S 66 E of point A. All other points were located and measured off in the same manner. Orange flags were placed at each point, and pink flags were placed every 55 feet to assist in maintaining the proper bearing alignment.

During the office review and map preparation a copy of the U.S. Soil Conservation Service Soil Survey for Lake County, Indiana (1972) was consulted to determine the presence or absence, and locations of hydric soils. The Lake County Indiana Survey sheet number 21 (Figure 3) indicates the majority of the area in question consists of Maumee loamy fine sand, interspersed with areas of Plainfield fine sand, Watseka loamy fine sand, and a small section of Tawas muck. The Maumee loamy fine sand and Tawas muck are classified by the U.S. Department of Agriculture and the Soil Conservation Service (1986) as hydric soils. To aid in the identification of the different soil types in the field, the soil profiles for Maumee loamy fine sand and Plainfield fine sand were recorded (Table 1). Because the soil sample probes were taken to a depth of 18 inches, only the first 3 incremented intervals were noted. Soil samples were collected at each point with a 21 inch Hoffer Soil Sampler probe. The soil samples were observed in the field and the lowest 3 inches were collected in whirl-pak bags for later comparisons to the Munsell Soil Color charts. Areas possessing standing water did not yield soil samples due to wash-out upon extraction of the probe. In these instances the whirl-pak bag containing the point location tags were transported back to the office empty.

Representative observation areas (Figure 4) were selected based upon several factors. In addition to selecting areas that met the hydric soil criterion, representative observation areas that had apparent characteristics, but were not identified on the National Wetland Inventory map were also chosen. The plant communities were characterized, and the percent areal cover of the dominant species in the communities were visually estimated. Samples of the dominant vegetation at each of the representative areas were collected in 8 gallon plastic bags and transported to the office for later identification. A list of references used is included in Appendix 1. Once the vegetation was identified the information was recorded on field data forms and the indicator status of the species was obtained from the National List of Plant Species that occur in Wetlands; Indiana (1988). A wetland determination was then made for each representative observation area based upon the 3 mandatory technical criteria; hydrophytic vegetation, hydric soils, and wetland hydrology, as outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands. The information obtained in the survey was used to prepare the final map of the site wetlands.

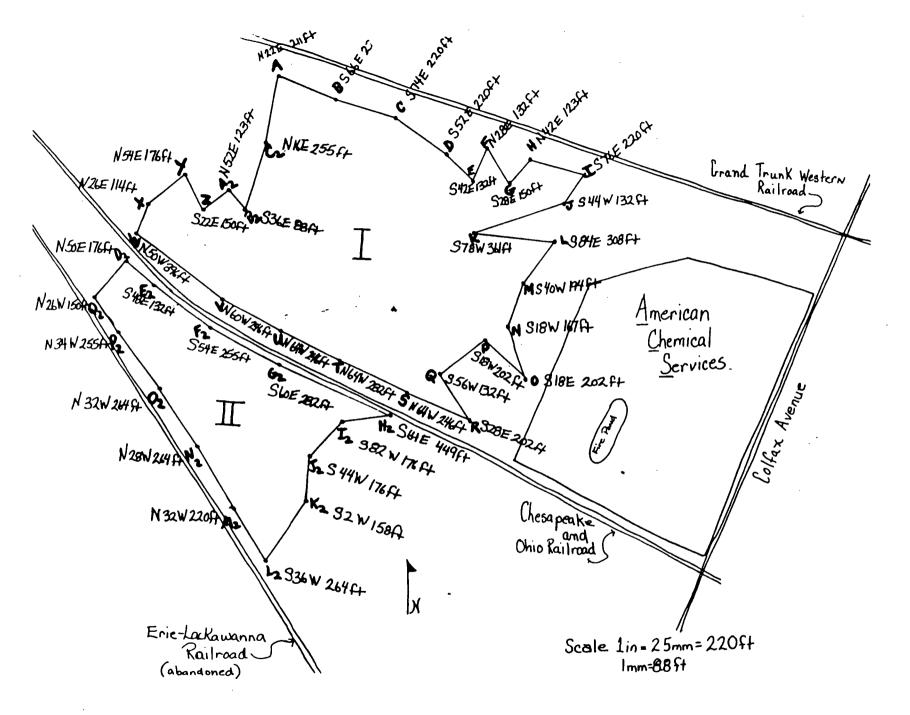


FIGURE 2. Preliminary wetland boundaries transcribed from 1984 aerial photograph. (Reduced 64%)

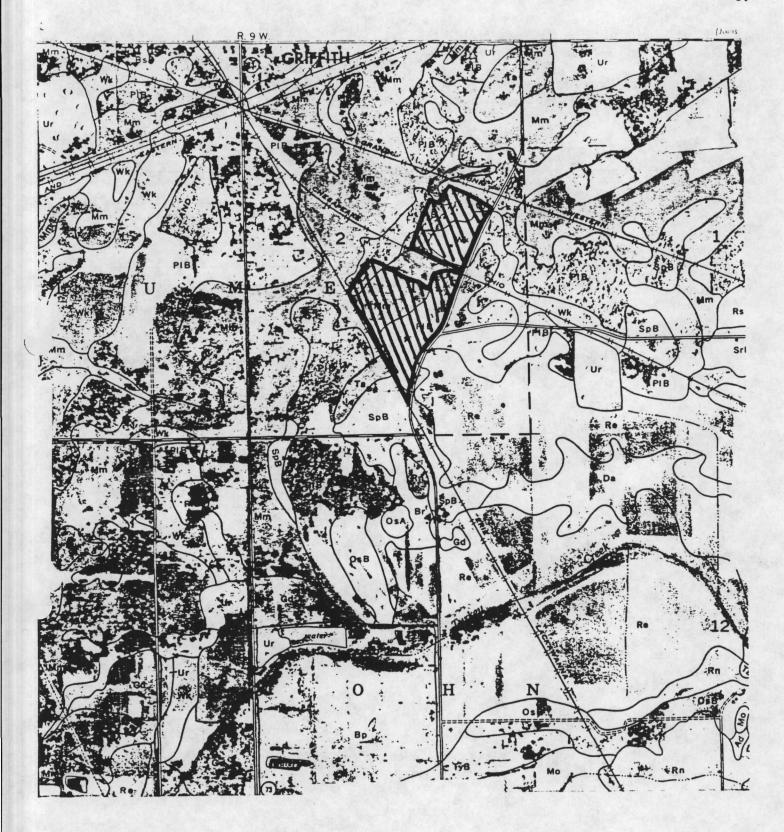


FIGURE 3. U.S. Soil Conservation Survey-Lake County. Plate number 21. Cross-hatched area is ACS. Shaded areas are hydric soils.

Table 1. Typical, Profiles for Maumee loamy fine sand (Hydric) and Plainfield fine sand (Non-hydric) in Lake County, Indiana.

Maume	e loamy fi	ne sand		Plainfield fine sand				
Depth Co		Color	Munsell Notation	Depth	Color	Munsell Notation		
0-9	inches	Black	N 2/0	0-4 inches	Dark Grey	10 YR. 3/1		
-16	inches	Black	N 2/0	4-6 inches	Greyish brown	10 YR. 4/2		
16-21	inches	Black	N 2/0	6-27 inches	Yellowish brown	10 YR. 5/4		

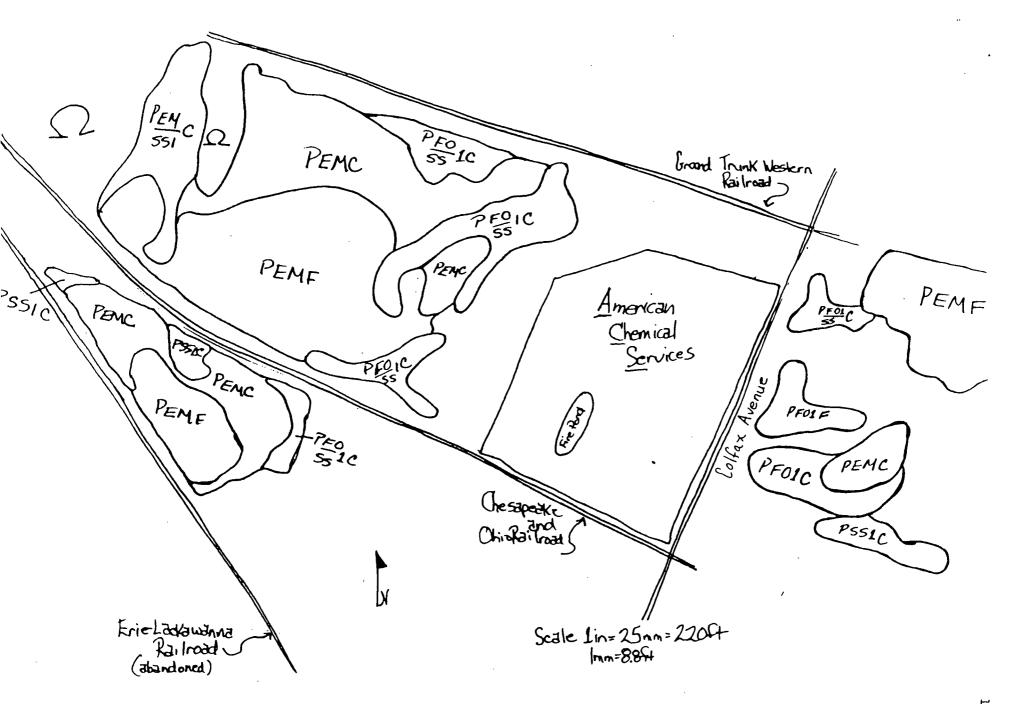


FIGURE 6. Approximate locations and classifications of additional wetlands located near the ACS site, east across. Colfax Avenue, Griffith, Indiana.

#### RESULTS AND DISCUSSION

Of the 21 representative observation areas sampled, 13 met all 3 mandatory technical criteria for wetland determination (Table 2). Of the 8 areas that failed the mandatory technical criteria test, N and  $\rm H_2$  lacked all 3 criteria; M, R, S, and  $\rm D_2$  lacked the hydric soils and wetland hydrology criteria;  $\rm C_2$  lacked hydrophytic vegetation criteria; and  $\rm F_2$  lacked wetland hydrology criterion.

# Wetland I

Wetland I is bounded by the Grand Trunk Western Railroad, the American Chemical Services site, and the Chesapeake and Ohio Railroad. Based upon the results of the survey this area is more complex than the National Wetland Inventory (NWI) indicates (Figure 5). NWI shows this area as consisting of a large palustrine, emergent, semi-permanent mixed with seasonally flooded wetland. The NWI does not show any of the forested or scrub-shrub wetlands bordering the palustrine emergent area. Of the 5 representative observation areas that did not meet the technical criteria for wetland determination all were transitional zones between the wetland-upland interface because of the presence of non-hydric soils at 4 of the 5 areas. All of the areas possessed hydrophytic vegetation, but the percentage of FACU and UPL exceeded the percentage of FAC, FACW, and OBL species only at area N. It should be noted that some species were collected at the various areas that did not have indicator category designations; these species were not calculated into the percentages.

## Wetland II

Wetland II is bounded by the Chesapeake and Ohio Railroad, the City of Griffith landfill, and the abandoned Erie-Lackawanna Railroad bed. Wetland II, according to the NWI is a palustrine, emergent, semi-permanent wetland. The various other habitat types surrounding it have been omitted from the official map.

This wetland area has been impacted due to past and present expansion of the City of Griffith Landfill. Approximately 5 acres of emergent/scrub-shrub/forested wetland on the north and southeast corners have been filled since the 1984 aerial photograph was taken. There is also a gravel road/turn-around that appeared to have been recently laid in the center of the palustrine, emergent, seasonally flooded wetland (Figure 5). This was probably an illegal fill; the U.S. Army Corps of Engineers has been notified.

There were 3 representative observation areas that did not meet the 3 technical criteria for wetland designation. These 3 areas, however, were placed along the railroad embankment, due to the location of a drainage ditch (approximately 5 feet deep) lying between the railroad tracks and the wetland area to the south of the ditch.

#### NATURAL RESOURCES

This field investigation indicated that the natural resources and natural resource values of the wetland habitats are greater than originally suspected because of the diversity of habitat types present: emergent, scrub-shrub, and forested.

Table 2. Results of the technical criteria test for 21 representative observation areas at the ACS site, Griffith, Indiana.

Area	Soil Series	Hydrophytic Vegetat	Hydric S	Soil	Wetland H	ydrology	Wetland	Determination
		% OBL, FACW, FAC	Yes	No	Yes	No	Yes	No No
Α	Maumee loamy fine sand	85.5	X		X		X	
В	Maumee loamy fine sand	100.0	X		X		X	
E	Maumee loany fine sand	85.7	X		X		X	
G	Maumee loamy fine sand	88.0	X		X		X	
J	Maumee loamy fine sand	100.0	Х		Х		X	
M	Plainfield fine sand	60.0		X		X		X
N_	Plainfield fine sand	40.0		X		X		X
$R^{1}$	Plainfield fine sand	62.5		X		Х		X
R	Maumee loamy fine sand	77.0	X		X		X	•
S	Plainfield fine sand	100.0		X		X		X
U	Maumee loamy fine sand	100.0	X		X		X	
V	Maumee loamy fine sand	100.0	X		. Х		X	
W	Maumee loamy fine sand	83.3	X		X		X	
Y	Maumee loamy fine sand	77.0	X		X		X	
C <sub>2</sub> -	Maumee laomy fine sand	40.0	X		X			X
$D_2^2$	Plainfield fine sand	50.0		X		X		X
$\mathbf{F_2^2}$	Maumee loamy fine sand	60.0	X			X		X
н2	Plainfield fine sand	40.0		X		X		X
N <sub>2</sub>	Maumee loamy fine sand	100.0	X		X		X	
02	Maumee loamy fine sand	100.0	X		X		X	
$Q_2^2$	Maumee laomy fine sand	60.0	Х		X		Х	

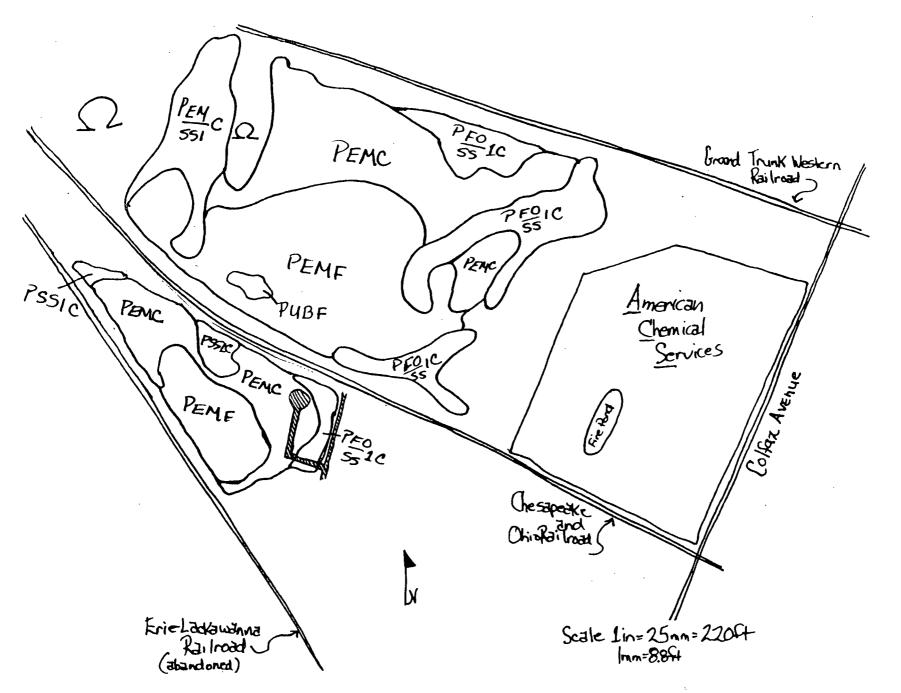


FIGURE 5. Wetland designations at the ACS site, Griffith, Indiana. Cross-hatched area is location of the illegal service road/turn-around fill.

The vegetation of "marshes" is characterized by emergent aquatic plants growing in permanent to semi-permanent shallow water. Also present are species of shallow open water communities, as well as those found in sedge meadows and seasonally flooded basins. Marshes are among the most productive of all wetlands for waterbirds and furbearers, and can also provide spawning and nursery habitat for many species of fish. Birds that use marshes for breeding and feeding include ducks, geese, rails, herons, egrets, terns, and many songbirds. Raptors such as the osprey, bald eagle, and northern harrier frequent marshes in search of prey. Important furbearers inhabiting marshes include beaver, muskrat, and mink. Excellent winter habitat can be provided for upland wildlife, including ring-necked pheasant and eastern cottontail (Eggers and Reed 1987).

The emergent wetlands in the centers of wetland areas I and II are predominated by cattails. A list of species collected can be found in Table 3. Cattail stands provide important food and cover for wildlife. For example, the rhizomes are eaten by geese and muskrats. Muskrats also use the foliage to construct their lodges, which in turn can provide resting and nesting sites for waterbirds. Yellow-headed blackbirds, red-winged blackbirds, and marsh wrens build their nests in cattail vegetation. Wetland area I contains an open water area with a muskrat den and much activity in this area was apparent.

The transitional zones between the emergent areas and shrubby or forest areas support hydrophytic vegetation on saturated but not inundated soils. Plants occurring in these areas include species found in other communities, such as the annuals of seasonally flooded basins, emergent aquatics of marshes, and invading shrubs or trees, which are present as scattered, small individuals.

The transitional emergent zones are particularly important for their water quality functions. Wildlife habitat is provided for many species including sandhill crane, ring-necked pheasant, common snipe, sedge wren, small mammals, and white-tailed deer. The composites found in these areas are an important fall and winter food source for songbirds.

Scrub-shrub wetlands are plant communities dominated by woody vegetation less than 20 feet in height and with dbh's of less than 6 inches growing on saturated to seasonally flooded soils. They can be dominated by willows and/or red-osier, and sometimes silky (swamp) dogwood. These areas usually retain some of the forbs, grasses, and sedges of the transitional emergent zones. The vegetation in scrub-shrub wetlands possesses a variety of wildlife value. Willows are browsed by white-tail deer and eastern cottontails; red-osier dogwoods provide berries for song birds and ruffed grouse and are browsed by deer and rabbits; and elderberry also provides berries for songbirds and ruffed grouse.

Forested wetlands are dominated by mature conifers or lowland hardwood trees. They are important for stormwater and flood retention, and also provide habitat for white-tailed deer, furbearers, songbirds, ruffed grouse, barred owl, and amphibians. The various wetland habitats at the American Chemical Services site are being used by a variety of wildlife species, many of which were observed during the reconnaissance flagging visit, and the field survey visit (Table 4).

#### ADDITIONAL WETLANDS

At a meeting held by the U.S. EPA project manager on February 28, 1990, FWS was requested to observe the area immediately east of American Chemical Services,

Table 3. List of Vegetation Species collected on April 10-11, 1990 at the ACS site, Griffith, Indiana.

Scientific Name	Common Name	Indicator Category
Agrimonia parviflora	Agrimony	FAC+
A. pubescens	Agrimony	None
Ampelopsis arborea	Peppervine	None
Apocyneum androsaemifolium	Spreading dogbane	None
Aronia arbutifolia	Red chokeberry	None
Retula allegheniensis	Yellow birch	FAC
ltha palustris	Marsh marigold	OBL
Itis occidentalis	Hackberry	FAC-
Cornus ammonum	Swamp dogwood	FACW+
C. stolonifera	Red-osier dogwood	FACW
Corylus americana	Hazelnut	FACU
Cytisus scoparius	Scotch broom	None
<u>Dipsacus sylvestris</u>	Teasel	None
Fragaria virginiana	Common Strawberry	FAC
Galium aparine	Bedstraw	FACU
Hamamelis virgiana	Witch hazel	FACU
Liquidambar styraciflua	Sweet Gum	FACW
Ludwigia glandulosa	Ludwigia	OBL
Lyriodendron tulipifera	Tuliptree	FACU+
Nyssa sylvatica	Tupelo	FACW+
Onoclea sensibilis	Sensitive fern	FACW
Populus deltoides	Cottonwood	FAC+
P. grandidentata	Large-tooth Poplar	FACU
tremoides	Quaking Aspen	FAC
riunus pennsylcanica	Pin cherry	FACU
Pteris esculenta	Braken fern	FACU
Quercus alba	White oak	FACU
Q. bicolor	Swamp white oak	FACW+
Q. coccinea	Scarlet oak	None
<pre>Q. palustris</pre>	Pin oak	FACW
<u>Q. rubra</u>	Northern red oak	FACU
Q. velutina	Black oak	None
Rhus copellina	Dwarf sumac	None
<u>Riccia</u> <u>fluitans</u>	Liverwort	None
Ricciocarpus natans	Liverwort	None
<u>Rosa carolina</u>	Wild rose	FACU-
R. multiflora	Multi-flora rose	FACU
<u>R. nitida</u>	Northeastern rose	None
Rubus allegheniensis	Highbush blackberry	FACU+
R. canadensis	Smooth backberry	None
R. hispidus	Swamp dewberry	FACW
R. villosa	Low blackberry	None
<u>Salix</u> <u>discolor</u>	Pussy willow	FACW
<u>S. exigua</u>	Sandbar willow	OBL

Table 3. List of Vegetation Species (Con't).

Scientific Name	Common Name	Indicator Category
Sambucus canadensis	Elderberry	FACW-
<u>Solidago</u> <u>altissima</u>	Golden rod	FACU
Sonchus arvensis	Field sow-thistle	FAC-
<u>Spiraea alba</u>	Meadow sweet	FACW+
S. latifolia	Meadow sweet	None
Stenanthium gramineum	Featherbells	FAC
Thelypteris thelypteroides	Marsh fern	· FACW
Typha angustifolia	Narrow-leaf cattail	OBL
<u>latifolia</u>	Broad-leaf cattail	OBL
mus rubra	Slippery elm	FAC
erbascum thaspus	Wooly mullein	None
Verbena urticifolia	White vervain	FAC+
<u>Viburnum</u> <u>prunifolium</u>	Black haw	FACU
<u>Vitis</u> <u>aestivalis</u>	Summer grape	FACU
<u>V. vulpina</u>	Frost grape	FACW-
Xanthorhiza simplissima	Yellowroot	None

Table 4. List of wildlife species observed utilizing the wetland habitats at the American Chemical Services site, Griffith, Indiana April 10-11, 1990.

Red-winged blackbirds (many) Wood ducks (1 pair) Mallard ducks (2 pairs) Canada geese (1 pair) Killdeer (1) Common crows (many)
Wood ducks (1 pair) Mallard ducks (2 pairs) Canada geese (1 pair) Killdeer (1)
Wood ducks (1 pair) Mallard ducks (2 pairs) Canada geese (1 pair) Killdeer (1)
Mallard ducks (2 pairs) Canada geese (1 pair) Killdeer (1)
Canada geese (1 pair) Killdeer (1)
Killdeer (1)
Common crows (many)
Common Clows (many)
Downy woodpeckers (2)
Hairy woodpeckers (1)
Gulls (many)
Ring-necked pheasant (1 male)
Golden-crown kinglets (2)
Cardinals (3)
American goldfinches (1 pair)
Raccoon (tracks)
White-tailed deer (tracks)
Muskrats (3) & den
Eastern cottontails (4)

adjacent to Colfax Road to determine if wetlands were present. This area was walked during the field reconnaissance flagging visit, which revealed various wetlands, some of which were not indicated on the NWI maps (Figure 6). There is a palustrine, emergent, semi-permanent wetland approximately 7 acres in size about 0.1 mile east of Colfax Road, that is identified on the NWI map. The field check revealed that this wetland extends west and southward within 20-30 feet of the roadway. These wetlands would be classified as a combination palustrine, emergent/scrub-shrub forested area with water regimes ranging between temporary, saturated, seasonal, seasonal saturated, and semi-permanent.

A wetland delineation was not conducted for this area, however, the soil survey maps indicate that portions do contain hydric soils.

#### **ENDANGERED SPECIES**

The Highland area of Lake County is represented by many federal and state species of special emphasis/concern, in addition to several federal threatened and endangered species. An annotated list follows:

Fed E Indiana bat Myot
Fed E Peregrine falcon (Fal
Fed T Pitchers thistle (Cir
Sp EM/CN Great blue heron (Arc
American bittern (Bot
Black tern (Chl
Least bittern (Ixo
King rail (Ral
Yellow-crowned night heron (Nyo
Spotted turtle (Cle

Franklin's ground squirrel Blanding's turtle

Dianaing 5 car

Bald eagle

<u>Myotis</u> <u>sodalis</u>

(Falco peregrinus) \*Migratory

(<u>Cirsium pitcheri</u>) (<u>Ardea herodias</u>)

(Botaurus lentiginosus)

(<u>Botaurus lentiginosus</u> (<u>Chlidonis niger</u>) (<u>Ixobrychus exilis</u>) (<u>Ralus elegans</u>)

(Nycticorax violaceous)

(Clemmys guttata)
(Opheodrys vernalis)
(Spermophilus franklini)
(Emydoidea blandingi)

(<u>Haliaeetus</u> <u>leucocephalus</u>) \*Historical

This endangered species list constitutes informal consultation only, and is not intended to fulfill the requirement of Section 7 of the Endangered Species Act of 1973, as amended. If, after review of the Phase I Remedial Investigation report, it appears likely that any endangered species may have been/may be affected by this site, it may be necessary to initiate formal consultation. If as a result of further consultation, a "no effect" determination is made regarding endangered species, that determination should be revisited after 1 year for new information, or newly listed species.

# CONCLUSIONS

- 1. Wetlands identified on the NWI do exist at the American Chemical Services site.
- 2. There are wetlands present at the site that are not identified on the NWI. These wetlands consist of palustrine, forested, and scrub-shrub transitional zones between the NWI-identified emergent wetland and upland areas.

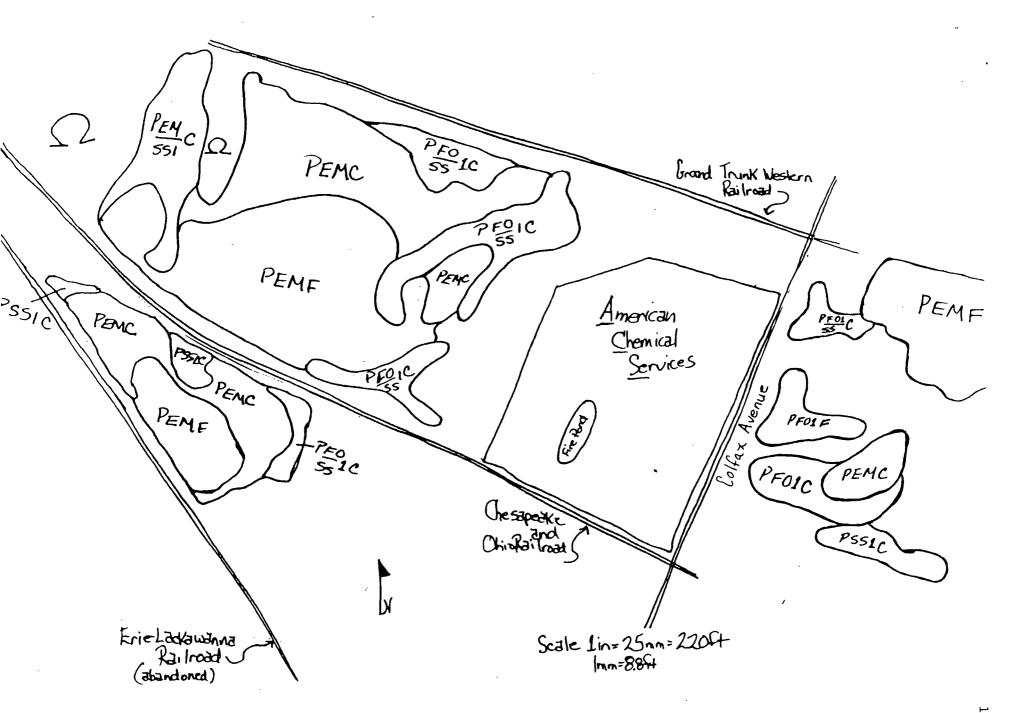


FIGURE 6. Approximate locations and classifications of additional wetlands located near the ACS site, east across. Colfax Avenue, Griffith, Indiana.

- 3. The wetlands present at the site provide habitat diversity for a variety of wildlife species.
- 4. The wetlands present on the site possess potential habitat for federal threatened and endangered species, state and federal species of special concern/emphasis, and other birds protected by the Migratory Bird Treaty Act.

#### Literature Cited

- Eggers, S.D. and D.M. Reed. 1987. Wetland Plants and Plant Communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District. 201pp.
- Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service, Washington, D.C. Cooperative technical publication, 76 pp. plus appendices.
- Reed, P.B. 1988. National List of Plant Species that occur in Wetlands-Indiana, National Wetland Inventory, St. Petersburg. 23pp. plus lists.
- U.S.D.A. Soil Conservation Service. 1986. Hydric Soils of the State of Indiana.
- \_\_\_\_\_. 1972. Soil Survey of Lake County, Indiana. U.S. Government Printing Office, Washington; 94 pp plus appendices.

#### APPENDIX 1

# References

- Ellis, W.H. and E.W. Chester. 1971. Spring Wildflowers of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 60pp.
- \_\_\_\_\_. 1973. Summer and Fall Wildflowers of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 71pp.
- \_\_\_\_\_. 1980. Trees and Shrubs of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 71pp.
- Eggers, S.D. and D.M. Reed. 1987. Wetland Plants and Plant Communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District. 201pp.
- Illinois Department of Conservation. 1988. A Field Guide to the Wetlands of Illinois. IDOC. 244pp.
- Knobel, E. No Date. Identify Trees and Shrubs by Their Leaves; A Guide to Trees and Shrubs Native to the Northeast. Dover Publications, Inc., New York 47pp.
- Mitchell, A. 1979. Spotter's Guide to Trees of North America. Mayflower Books; New York. 64pp.
- Parsons, F.T. 1961. How to Know the Ferns. Dover Publications; New York. 215pp.
- Peterson, R.T. and M. McKenny. 1968. A Field Guide to Wildflowers; Northeastern and North-central North America. Houghton Mifflin Company; Boston. 420pp.
- Petrides, G.A. 1988. A Field Guide to Eastern Trees; Eastern United States and Canada. Houghton Mifflin Company; Boston. 272pp.
- Phillips, H.C. 1974. Lichens and Ferns of Land Between the Lakes. Austin Peay State University. Clarksville, TN. 60pp.
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. The University of North Carolina Press; Chapel Hill. 1183 pp.
- Symonds, G.W.D. and S.V. Chelminski. 1958. The Tree Identification Book; a New Method for the Practical Identification and Recognition of Trees. Quill Publishing Company; New York. 272pp.
- \_\_\_\_\_. and A.W. Merwin. 1963. The Shrub Identification Book; The Visual Method for the Practical Identification of Shrubs, Including Woody Vines and Ground Covers. William Morrow and Company; New York. 379pp.

APPENDIX 2
Field Data Forms